HOUSING DEVELOPMENT AND THE ROLE OF SELF-HELP HOUSING IN VIETNAMESE CITIES:

A CASE STUDY OF CAN THO CITY

by

Tran Ngoc Tuyen

BA in Architecture, HCMC UoA, Vietnam;

MEng in Construction Engineering and Infrastructure Management, AIT, Thailand

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School of Energy, Geoscience, Infrastructure and Society

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DECLARATION

I declare that this thesis represents my own work, except where due acknowledgement is made, and it has not been previously included in a thesis, dissertation or report submitted to this University or any other institution for a degree, diploma or other qualification.

Signed……

Tran Ngoc Tuyen

ABSTRACT

This research explores how new urban housing has been developed in recent years in a high climate change risk city of Can Tho in Vietnam, with a strong focus on self-help housing process and its role in providing urban housing for the low and middle-income groups. In order to achieve this aim, four objectives were clarified in this thesis, which include: (1)-Exploring why and how does self-help housing happen commonly in Vietnamese cities, and what is the role of self-help housing in urban housing development in Vietnam; (2)-Identifying the main approaches, forms and identities of new urban housing developments in the Vietnamese Mekong Delta Region (VMDR), and what economic, social or environmental problems arise from this; (3)-Finding out to what extent does the legal and administrative framework, land ownership and the practical process of land use change affect housing development in Vietnam; and (4)-Pointing out the major risks in housing development in the VMDR.

Firstly, by initially examining the literature on housing development and self-help housing, mostly in relation to the developing countries, the author established the different approaches for housing the urban low and middle-income groups as well as an analytical framework for the research which includes the pros and cons of self-help housing approaches. This conceptual contribution of the research summarises the theory of self-help housing and the self-help approach in urban development in developing countries. The framework provided a firm structure to study self-help housing in Vietnam in this research through the analysis of the Can Tho city case study.

Secondly, the contribution of the thesis at the practical level is the provision of lessons from developing countries such as China, Turkey, Thailand and others that Vietnam can learn from (in both positive and negative ways) with reference to various aspects of urban development management, urban design, living condition improvement and environmental protection. Although the thesis did not draw extensively on the lessons from the four developing countries, they did provide general overviews of self-help housing development in developing countries facing similar problems to those of Vietnam.

Thirdly, the research investigated the Vietnamese construction industry context, including Vietnam's planning structure, legislation (including Laws on planning, construction, real estate and housing), which has driven the housing development in Vietnam. The empirical analysis of the case study shows that self-help housing is

dominant in housing development in Vietnamese cities in recent years. It plays an important role in housing the low and middle-income groups. This trend will take place in the short and medium term, as the loose regulation in planning and development control and the fact that many people (including government officials) are highly satisfied with this type of housing. However, in the longer term most of the informal housing will arguably be transformed into or replaced by formal housing, as people will recognize both the short and long-term benefit of the formal housing planning and development process.

This study reveals that self-help housing, including both the informal and formal self-help, has been successful in providing affordable and flexible housing for the low and middle-income groups in Vietnamese cities. Due to the high level of land accessibility for self-help housing in many Vietnamese cities and the lack of a proper housing finance system to support house buyers, most people prefer to develop their own houses depending on their current financial abilities. The changing of land use purposes which leads to a significant change in land value is also an important factor in driving the growth of self-help housing development in Vietnam. Institutionally, the pro-self-help housing government and a weak urban planning and management system are also part of underlying causes of the enormous development of self-help housing in Vietnamese cities in recent years.

This study also gives recommendations towards a pro-active government's initiatives to strengthen the urban governance in order to archive a fair and transparent environment in housing development in Vietnamese cities for stakeholders, enhance the land use effectiveness and improving the living condition of urban resident in a more sustainable way.

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List of abbreviations

BOLURCs Building Ownership and Land Use Right Certificates

CAPI Can Tho Institute for Architecture and Planning

CC Climate Change

CCCP Center for Construction Consultancy and Planning

CTC Can Tho city

CTU Can Tho University

CTUDRP Can Tho Urban Development and Resilience Project

CCCO Can Tho Climate Change Coordination Office

SOCCMA Standing Office for Climate Change Mitigation and Adaptation

DoC Department of Construction

DoHL Department of House and Land (old name of DoNRE)

DoNRE Department of Natural Resources and Environment

DoPA Department of Planning and Architecture (only for HNC and HCMC)

FH Formal Housing

GDP Gross Domestic Product

GIS Geographic Information System

GPS Global Positioning System

GSO General Statistics Office

HCMC Ho Chi Minh City

HHs Households

HNC Ha Noi City (Capital of Vietnam)

IH Informal Housing

IS Informal Settlement

LMI Low and Middle-income

LURCs Land Use Right Certificates

MoC Ministry of Construction

NURA New Urban Residential Area

PC People's Committee

PMU Project Management Unit

RA Relocation Area (or Resettlement Area)

RRA Residential and Relocation Area

SLR Sea Level Rise

SRA Spontaneous Residential Area

SRV Socialist Republic of Vietnam

SISP Southern Institute for Spatial Planning-MoC

UUP Urban Upgrading Project

VIUP Vietnam Institute for Urban Planning-MoC

VIA Vietnam Institute for Architecture-MoC

VMDR Vietnamese Mekong Delta Region

VPHC Vietnam Population and Housing Census (1989, 1999 and 2009)

VUPDA Vietnam Urban Planning and Development Association

WB World Bank

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CHAPTER 1: INTRODUCTION

1.1 Introduction

The concern with housing issues, especially the spontaneous and self-help housing, came to me in 2009 when I was appointed to a group which was in charge of making a plan for renovation and gentrification of the central area of the Can Tho city in Vietnam. At that time, I myself and the team soon realized the huge problem of how to deal with the residential areas which has been developed spontaneously over many years without, or with very little, planning and development control. We kept wondering to ourselves what should we do or could we do with thousands of houses which have been already been built up spontaneously, which means that there are thousands of different houses, in terms of size, shape, height, color or material, which make the city extremely diversity but chaotic. So, should we simply consider them as self-renovation or demolish them all for new urban style? It was clear that both of those approaches would not work or would not satisfy the need for a satisfactory way of city development towards a more sustainable future.

In order to find out a possible answer for this question, this research is going to explore the process of how urban housing has been developed in Vietnamese cities in recent years, and propose some suggestions for improving the policy in both housing development and urban planning and management for the local authorities in order to achieve a more sustainable future for the Can Tho city specifically.

This introductory chapter aims to set out the themes and the significance of this research and consists seven sections. Following the introduction, the second section gives a general background of the existing housing and urban development in Vietnam. The third section sets out the statement of the problem. In the fourth section, the research aim and objectives will be established. The fifth section presents the research strategies and the methods that will be employed to answer the research question and sub-questions. The sixth section outlines the structure of this dissertation, and followed by a conclusion section for this chapter.

1.2 Housing and urban development in Vietnam: an overview

Vietnam has been transformed from a centrally planned economy based on subsidy principles to a market-oriented economy directed by socialist ideology since 1986, which is called '*Đổi mới'*. Since then, the housing development process in Vietnam

has become an important factor in the economy (Anh and Yip, 2008). To almost every Vietnamese citizen, building a house is one of the most important things in his/her life. Housing is not only the big and valuable asset of each household or individual but also an important factor which indicates the level of social economic development, culture, custom and practice of each ethnic, region or countries (Go-VN, 2011).

Following the economic reform in 1986, Vietnam had a significant change in housing policy. The housing sector in Vietnam has been transformed from a socialist system, in which the state had total control in terms of supply and allocation, towards a market-oriented system dictated by the laws of supply and demand. Since 1991, the Vietnamese Government has stopped the subsidy housing policy, and encouraged private organizations and individuals to take part in the housing development system. It then has opened a chance for many people to build their own houses.

So, in recent years there is a strong development of housing in many Vietnamese cities. In this picture, besides the official developments in new urban residential areas with the approved plans from local government, there are many self-development housing areas which not only provide plenty of housing opportunities but also cause many difficulties for the local government in urban planning and management. This mostly stems from the affordable housing needs of the low-income people. They do not have the economic abilities to access housing projects developed by professional companies, which are mostly targeted to the high-income people. Moreover, these low-income people also expect a rapid change in property price in the short-term due to the high level of urbanization. So, they consider it as a property for both to stay and to invest. This encourages a boom in self-development housing in Vietnamese cities. While the formal housing development projects have provided high-standard living environment but could not be quickly filled up with residents, the other informal/spontaneous developments have produced low quality of housing with a poor living condition but were usually filled up in just few years.

Figure 1: The road to the spontaneous housing area

Source: Author survey, 2014

Besides that, there were also significant changes in land policy in such matters: land transfer, land use right, permission in land use purpose change and land lot division. This provides a plentiful supply of land for the housing development activity of the citizen within the direction of "self-development". However, the Vietnam land use system and planning system are not well structured for this kind of housing development, thus providing a chaotic outcome in terms of housing styles and urban pattern.

Vietnam has a total population of over 85 million with an estimated urban population of 25 million according to the most recent National Census conducted in 2009 (GSO-VN, 2010). In that, there are over 22.6 million households living across the country including around 7 million household living in urban areas and some other 16 million households living in rural areas (see Table 2).

There are five big cities which belong to central government administration include Ha Noi, Ho Chi Minh, Da Nang, Hai Phong and Can Tho (see more detail in Table 1). The other cities belong to the provincial administration. There are 58 provinces in Vietnam and 67 cities which belong to those provinces. Most of the provinces have only one city where the provincial administrative offices are located and several other

boroughs and towns, while few provinces[1] have two cities and an exceptional Quang Ninh[2] has four cities.

Table 1: Population and area of major cities in Vietnam

City	Population	Area (sq.km)	Classification
Ho Chi Minh City	6,347,000	2099.0	Special city
Ha Noi Capital	6,232,000	3344.7	Special city
Hai Phong	1,827,000	1520.7	Class 1 city
Da Nang	805,000	1257.3	Class 1 city
Can Tho	1,155,000	1401.6	Class 1 city

Source: GSO, 2007

Although the urbanization level of Vietnam is low compare to its neighbour countries such as China or Thailand, nevertheless the contribution of Vietnamese cities and urban areas to the country's economy is highly significant (Yeung, 2007). After the end of the Vietnam war and country unification in 1975, the urbanized rate of Vietnam was just 18.8 percent which grew to 19.6 percent in 1985 and 26.4 percent in 2005 (Yeung, 2007). By 2009, the percent of urban population in Vietnam is 29.6 percent and with an urban growth of 3.4 percent each year (see Table 2).

Table 2: Population and population growth

Indicator	Vietnam	Urban	Rural
Total population (person)	85,789,573	25,374,262	60,415,311
Number of households	22,628,071	6,950,589	15,677,482
Annual population growth rate (%)	1.2	3.4	0.4
Percent of urban population	-	29.6	-
Percent of urban population growth	-	3.4	-
Population density (person/sq. km)	259	-	-

Source: General Statistic Office, Population and Housing Census 2009

The Population and Housing Census in 2009 is the most comprehensive census ever done in Vietnam after the country unification in 1975, which gives a clearer existing picture of the Vietnamese housing background. Table 3 shows some main features of

[1] Including An Giang, Ba Ria-Vung Tau, Khanh Hoa, Lam Dong, Ninh Binh, Quang Nam, Thai Nguyen and Dong Thap

[2] With the Ha Long city where the famous UNESCO World Heritage Site 'Ha Long Bay' is located

housing in Vietnam, in which we can see the significantly high level of housing ownership in Vietnam, with over 92 percent of the housing stock was owned by private householders, and some other few percent of housing belonged to the state and other collective organizations. The percent of rental housing in Vietnam is quite low with only 6.4 percent of the housing stock, and most of the rental housing locate in urban areas where the population density is relatively high.

Through the 2009 Population and Housing Census, we could see the gap in living condition and housing facility between the urban and rural areas in Vietnam in some criteria such as living space, clean toilets and telephones. The living area per capita in urban areas is 23.1 square meter while in rural areas is only 16.7 square meter. Besides that, only 39 percent of the rural households have clean toilets compare to that 87.8 percent in urban areas (see Table 3). And only 38.7 percent of rural households have telephones compare to that of 63 percent in urban areas. However, in other criteria such as electricity, hygienic water and televisions there are not much difference between urban and rural households.

Table 3: Housing classification

Indicator	Vietnam	Urban	Rural
Percent of permanent houses[3]	47.0	42.5	49.0
Percent of semi-permanent houses	37.8	51.6	31.7
Percent of less-permanent houses	7.8	3.3	9.8
Percent of simple houses	7.4	2.6	9.5
Percent of houses with ownership	92.9	85.8	96.0
Percent of rented or lent houses	6.4	13.2	3.3
Percent of houses with unclear ownership	0.2	0.3	0.1
Living area per capita (sq. m/person)	18.6	23.1	16.7
Percent of households with hygienic water	86.7	96.3	82.5
Percent of households with clean toilets	54.0	87.8	39.0
Percent of households with electricity	96.1	99.6	94.6
Percent of households with televisions	87.0	91.7	84.9
Percent of households with telephones	46.2	63.0	38.7

Source: General Statistic Office, Population and Housing Census 2009

[3] In the 2009 Census, housing was categorised into four type base on the main structure and material of the house, including: *Permanent housing* (includes dwellings for which the three main structural elements: supporting columns, roof and walls all consist of sturdy types); *Semi-permanent housing* (indicates that two out of three structural elements are made of sturdy categories); *Less-permanent housing* (only has one of the three structural elements belonging to the sturdy category); and *Simple housing* (all three structural elements are classified as flimsy)

Table 4 classifies the types of housing in Vietnam into four groups: permanent housing, semi-permanent housing, less-permanent housing and simple housing. Among these types of housing, some 46.7 percent are permanent housing. It's quite interesting that the percent of permanent housing in rural areas is higher than in urban areas, with 49 percent compare to 41.1 percent respectively, because the urbanization level in Vietnam is not high with just over 30 percent, and most of the poor people in Vietnam are still living in rural areas. In the other end, the same phenomenon happens with the less-permanent and simple housing. However, the semi-permanent housing is the dominance type of housing in urban areas in Vietnam with 52.7 percent compare to only 31.7 percent in rural areas (see Table 4).

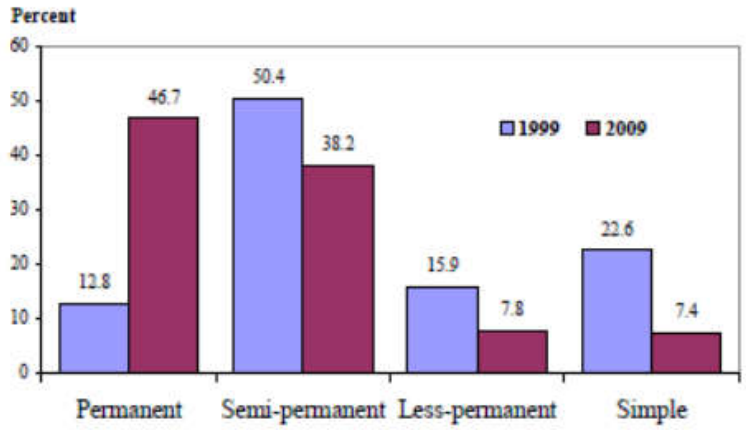
Table 4: Housing classification by type

Dwelling type	**Number (Household)**			**Percentage distribution (%)**		
	Vietnam	Urban	Rural	Vietnam	Urban	Rural
Permanent	10,559,513	2,877,521	7,681,992	46.7	41.4	49.0
Semi-permanent	8,633,005	3,661,632	4,971,373	38.2	52.7	31.7
Less-permanent	1,759,816	227,964	1,531,853	7.8	3.3	9.8
Simple	1,664,071	178,478	1,485,593	7.4	2.6	9.5
Total	22,616,405	6,945,594	15,670,810	100	100	100

Source: General Statistic Office, Population and Housing Census 2009

However, in the period from 1999 to 2009, within only ten years there was a significant change in housing type proportion in Vietnam. Figure 2 shows the huge change in housing development and upgrading in Vietnam within just a short period of time. The percent of permanent housing rising sharply to 46.7 percent in 2009 from only 12.8 percent in 1999 while the other types of housing drop down in percentage in the same period. We will try to give an answer to this phenomenon in this thesis by exploring the housing development processes and the role of stakeholders in the processes.

Figure 2: Proportion of households with housing by dwelling type in 1999 and 2009



Source: General Statistic Office, Population and Housing Census 2009

1.3 Limitation of housing system Vietnam

Housing is not only a valuable asset for each family or an individual but also an indicator for the development of a nation's socio-economy and an expression of culture, customs and tradition of each ethnic group in different areas. In a society, improving housing is an urgent task in order to raise the people's living standards. It is a fundamental right for a person to have a safe and adequate accommodation. It is also a legitimate need for a household and a necessary condition for developing human resources as needed by the industrialization and modernization process in Vietnam.

Since the August 1945 Revolution, the Vietnam Communist Party and the government have been very concerned with solutions to housing problems for the people, both in urban and rural areas. In each period, the State had suitable policy from housing subsidy policies which were mainly under the light of socialist renovation after 1954, to Policies on encouraging housing development and trading under market orientation from 1991 to 2000, then from 2001 to present the State has passed the most housing policies, ranging from the most important legal documents such as laws, decrees, and resolutions to minister and sector documents.

The policies in housing area issued by the state in recent years appear to have produced positive results. The assessment can be looked at from such aspects as: the increase in number of houses and urban areas, the increase in housing area, and the growth in housing quality and size. Besides several achievements as mentioned above, the implementation of housing development policy is riddled with problems and inadequacies

that need to be resolved in order to accelerate housing development, improve house supply and assist those people in difficulties to improve their living conditions. The following problems were pointed out in the National Strategy for Housing (Go-VN, 2011) which shows some weaknesses in housing development policy and mechanism:

- Lack of synchronization between housing policies and land, investment, planning and financial policies
- Houses price increase makes a negative impact on people's accommodation affordability
- Ever-increase in imbalances in the ratio of different house types and gaps in living conditions
- Lack of synchronization in housing investment policies in rural areas
- The model of organising and developing houses fails the requirement of the process of national industrialisation and modernisation
- Housing finance system lack synchronisation
- Cumbersome and complicated administrative procedures in the housing fields
- Problems of direction in the implementation of certain housing programs and policies
- The inadequacies in structure of the state management mechanism on housing,
- The investigation, inspection and punishment to the violations of the housing laws have not been conducted regularly and thoroughly

1.4 Statement of the problem

Like many other countries in the world, the Vietnamese Government considers housing is not only a valuable asset of each household but also an important factor that indicates the level of social and economic development, while also reflecting the culture, custom and practice of each ethnic, region or state (Go-VN, 2011).

Vietnam has been transformed from a centrally planned economy based on subsidy principles to a market-oriented economy directed by socialist ideology since 1986. Since then, the housing development process in Vietnam has become an important factor in the economy (Anh and Yip, 2008). The housing sector in Vietnam has been transformed from a socialist system, in which the state had total control in terms of supply and allocation, towards a market-oriented system dictated by the laws of supply and demand.

Housing development has also contributed an important part of urban development in Vietnam in recent years and the urban form is mainly a reflection of the types of dwellings being built. After the economic reform in 1986, Vietnam had a significant change in housing policy. Since 1991, the Vietnamese Government has stopped the subsidy housing policy and encouraged private organizations and individuals to take part in the housing development system. It has opened a chance for many people to build their own houses.

So, in recent years there is a strong development of housing in many Vietnamese cities. In those cities, besides the formal housing developments in new urban residential areas with the approved plans from local government, there are many self-help and spontaneous housing areas, which not only provide plenty of housing opportunities but also cause many difficulties for the local government in urban planning and management.

The housing development in Vietnam, in the past few decades, has been mainly driven by the need of affordable housing for the low and middle-income groups of people. They do not have the economic ability to access housing projects developed by real estate companies, which are mostly targeted to the high-income people. Moreover, these lower-income people also expect a rapid change in property price in the short term, due to the high rate of urbanization and migration. So, they consider it as a property for both living accommodation and as an investment. This has encouraged a boom in self-help housing in Vietnamese cities. However, most of these developments have produced low quality of housing with poor living condition and surrounding environment.

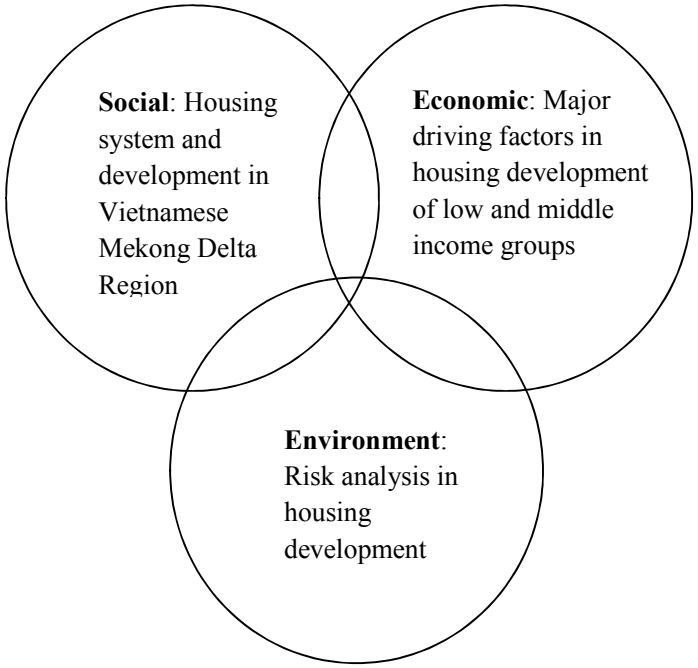
Moreover, since the adoption of the revised Land Law in 2003, there was also a significant change in land policy in matters such as land transfer, land use right, permission for land use purpose change, and land plot division. These policy changes in effect provided a plentiful supply of land for the housing development activity of the citizen within the direction of self-developed housing. However, the original land use and land pattern, which were originally formatted for agriculture purposes, are not well structured for this kind of housing development, and thus provide a chaotic and fragmented housing and urban pattern in the Vietnamese cities.

Besides that, urban and housing development in Vietnam is facing a major risk of flooding, especially in the context of global issues such as Climate Change (CC) and Sea Level Rise (SLR). In a recent World Bank's study, Dasgupta et al. (2009) has shown that Vietnam is among the countries which are seriously affected by CC and SLR. In the

investigation of 84 coastal developing countries in terms of SLR, Vietnam ranks first in impact on population, GDP, urban extent and wetland areas, and ranks second in impact on land area and agriculture (Dasgupta et al., 2009).

In that context, the increasing in urban population density will impose threats on sustainable development of Vietnamese cities in Mekong Delta, Red River Delta, and Central Coastal areas. So, this is a major challenge for a sustainable housing and urban development in Vietnam in coping with these issues. Therefore, this research will explore the risk of flooding and other environmental issues on housing development especially the informal housing in the Vietnamese Mekong Delta Region (VMDR).

Figure 3: Themes of the research in sustainable housing development



Source: Author, 2013

1.5 Research aim and objectives

Housing plays a very important role among the factors that have constituted urban areas. The area of land use for housing is usually a very large proportion of the total urban land use in most cities in the world. The purpose of this study is to understand the process of housing development in Vietnamese cities and the roles of actors involve in the process. This study focuses on the development process and the role of self-help housing in urban areas in Vietnamese Mekong Delta Region with high flooding risk from the changing climate. A better understanding in the housing development process under

environmental risks may forecast the development trend of the cities. Therefore, the findings may contribute to a better improvement of urban planning and housing policy in the VMDR towards a more sustainable future.

The purpose of this research is to investigate the role of self-help housing for low and medium income urban residents in newly-developed housing areas, their perceptions and preferences regarding housing, and the perceptions of other stakeholders in the context of Vietnam.

This research will try to answer this main research question: How does the self-help housing contribute to the housing development of the cities in the Vietnamese Mekong Delta Region, and what are the roles and perceptions of stakeholders in the development process?

Sub-questions of the research are following:

- Why and how does self-help housing happen commonly in Vietnamese cities, and what is the role of self-help housing in urban housing development in Vietnam?
- What are the main approaches, forms and identities of new urban housing developments in the VMDR, and what economic, social or environmental problems arise from this?
- To what extent does the legal and administrative framework, land ownership and the practical process of land use change affect housing development in Vietnamese cities?
- What are the major risks in urban housing development in the VMDR?

The aim of this study is to address the actual situation of urban housing development in the VMDR, including Can Tho city (CTC), and its role in solving the housing need of lower and middle-income people. The focus of this research is on the development process, in particular that of spontaneous housing areas, including the factors that are driving the development, upgrading and formalization processes, and also the role of spontaneous housing in the urbanization process of the city. The study also looks at some risks that lower and middle-income communities are facing in developing their own houses. The process of housing development, including both formal and informal housing, will be explored in this research.

1.6 Research strategies and methods use in the research

The research scope of this study is new individual housing development in urban areas in the Vietnamese Mekong Delta Region. The researcher chooses Can Tho city as a case study area based on the following considerations. Firstly, Can Tho is the biggest city in the Vietnamese Mekong Delta Region and fourth biggest city in Vietnam, with an officially registered population over 1.1 million people in 2009. It contains a rich mix of housing development types that the research questions will be addressed. Secondly, the Vietnamese Mekong Delta Region is expected to be one of the most severe effected regions in Vietnam from climate change and sea level rise. Therefore, the risk of housing and urban development in this region is more intensive comparing to other regions in Vietnam. Thirdly, access is possible and research sites are familiar. The researcher has lived in Can Tho for more than thirty years and worked for the local government for over ten years, making it comparatively easy to access relevant formal and informal organizations and establish relationships with the respondents.

The research methodology of this study is a combination of qualitative and quantitative methods (this will be discussed in detail in chapter 3). These methods will be alternatively employed during the process of data and information collection in the fieldwork. The qualitative methods are defined as a review of literature, personal interviews to collect the information from governmental organizations, local households and communities and others engaged in the process of housing development. The quantitative methods consist of structured household questionnaire surveys in order to generate detailed information at household level in case study areas, together with some analysis of secondary data sources such as census and property registers.

The objects of this study are primarily households within the two major groups of housing including both the informal and formal new housing development in Can Tho city. A secondary focus is on a range of stakeholders, as described below.

Stakeholders involve in the interviews include local government officers, urban planners, formal and informal developers and builders. The literature review and semi-structured interviews were adapted to examine the particular issues regarding in the housing development process. Semi-structured interviews were conducted to allow flexibility in generating new questions during the interview process, which can help in exploring deeper into the issues discussed. The purpose of conducting interviews is to obtain the views of the interviewees on the housing development and land market in CTC,

with a particular focus on the aim of this research. Leading government officials from relevant local authorities, such as the Peoples Committee (PC) from different administration levels (ward, district and city); Can Tho Department of Construction (DoC); and Can Tho Department of Natural Resources and Environment (DoNRE), as well as the concerned planners and representatives from professional organizations (such as Can Tho Institute for Architecture and Planning (CAPI); and Center for Construction Consultancy and Planning (CCCP), were interviewed to obtain information on policy and regulatory issues. Real estate agents and housing developers were also interviewed to obtain both qualitative and quantitative data on the formal housing market in CTC.

Besides that, structured questionnaire surveys were conducted at household level in order to understand the existing living conditions and experiences of local people on housing development. The structured questionnaires for the household surveys were designed and based on data and information collected from earlier pilot interview and others qualitative research results. Qualitative information was classified in information groups depending on each research objective. Each information group was coded in details of each question. The purpose of information group code is to quantify and crosscheck the qualitative information as well as to generate additional details from individuals on household level.

The household surveys were conducted in five sites in the Can Tho city. Households at the residential areas were numbered and divided into intervals of five to seven houses and then simple random sample from each interval was selected for the household surveys. In addition, Global Positioning System (GPS) and Geographic Information System (GIS) software was used to identify the exact position of samples and to design maps. The following table provides the links between research questions and the methods and tools for data collection and analysis in this research.

Table 5: Research questions, data and methods of the study

Research question	Data and method of collection	Method of analysis
1. Why and how does self-help housing happen commonly in Vietnamese cities, and what is the role of self-help housing in urban housing development in Vietnam?	▪ Questionnaire surveys with householder ▪ Semi-structured interviews with stakeholders ▪ Population and Housing Censuses ▪ Government policy and reports	▪ Both qualitative and quantitative methods of analysis are used ▪ SPSS is used for simple quantitative analysis
2. What are the main approaches, forms and identities of new urban housing developments in the VMDR, and what economic, social or environmental problems arise from this?	▪ Semi-structured interviews with stakeholders ▪ Population and Housing Censuses ▪ Local government plans, maps, registers, etc. ▪ Site survey and observation	▪ Both qualitative and quantitative methods of analysis are used ▪ SPSS is used for simple quantitative analysis ▪ Map-based analysis (GIS)
3. To what extent does the legal and administrative framework, land ownership and the practical process of land use change affect housing development in Vietnamese cities?	▪ Semi-structured interviews with stakeholders ▪ Government policy and reports	▪ Qualitative approach of analysis is used
4. What are the major risks in urban housing development in the VMDR?	▪ Questionnaire surveys with householder ▪ Semi-structured interviews with stakeholders ▪ Government policy and reports ▪ Local government maps/plans, registers.	▪ Qualitative approach of analysis is used ▪ Map-based analysis (GIS)

Source: Author, 2014

In the data reduction and analysis stage, all collected data and information were analyzed by Microsoft Excel, Statistical Package for the Social Sciences (SPSS) and GIS software (ArcMap). All the questionnaire responses were input in the SPSS software and checked. Descriptive statistic methods and some non-parametric tests were mainly used for quantitative data analysis. Other qualitative data were analyzed by using NVivo software.

1.7 Structure of the thesis

This thesis is organized into nine chapters. This first chapter gives an introduction of the research. The second chapter explores the literature review on the theoretical framework of this thesis including self-help housing, housing policy, urban form and urban sustainability. The third chapter discusses the methodology of the research. The fourth chapter gives the background of the case study. The fifth chapter analyzes the secondary data for this research including censuses, government's reports, plans, property market and maps-based data, and other documents. The sixth chapter discusses on housing development and the roles of stakeholders. In chapter seven, housing preferences of households and its effect on the development process will be explored. The eighth chapter examines the risks in housing development and environmental concern. Finally, the last chapter brings together conclusions and recommendations regarding housing development policy for the local government.

1.8 Conclusion

This chapter gives an introduction and an overview of the issues related to housing development in Vietnamese cities in recent years. Through this initial search, we could identify the dominance of self-help housing which has been built by individual owners across the country in Vietnam. The next chapter will discuss the literature related to housing development and self-help housing in both the context of developed and developing countries.

CHAPTER 2: LITERATURE REVIEW ON SELF-HELP HOUSING AND HOUSING DEVELOPMENT

2.1 Introduction

The aim of this study is to explore the roles and factors affecting the housing development process with a special focus on self-help housing in the Can Tho city of Vietnam. This chapter discusses the concepts of self-help housing and housing development in both the developed and developing world. It also explores some other related issues on housing affordability, urban form, sustainable development and climate change adaptation as they will provide a broader context for urban and housing development in Vietnam towards a more sustainable future.

This chapter consists of nine sections. Following the introduction, the second section discusses the concept of self-help housing in a broader scope, including both the informal spontaneous housing and formal self-build housing. In the third section, some of the practical researches and experiences regarding self-help housing in developing countries are explored in order to understand the practical issues involving in adopting self-help housing in some similar countries. The fourth section gives a general review on urban planning and housing development in some developed and developing countries including some socialist and capitalist one. The fifth section discusses the experiences of housing development in some developing countries. The sixth section explores the urban form and sustainability issues in housing development. The seventh section reviews the research on housing and land policies in Vietnam. The eighth section discussed some issues on housing affordability and housing finance and follow by the conclusion section.

2.2 Self-help housing: the definition and debate

- *Definition of self-help*

There are many terms related to self-help housing including informal housing, informal settlement, slum or squatter which have been used widely in academic writing for many decades. Informal housing (IH) or informal settlements (IS) is a group of dwellings where the families are illegally occupying the land on which they are settled, where there is no formal layout plan and the land is either un-serviced or minimally serviced (Abbott and Douglas, 2003). Informal settlements, which are mainly settlements of the poor, result from unauthorized occupation of land and usually with non-adherence to land use and building regulation (Huchzermeyer, 2009).

While the term ‘self-help housing’ has been extensively used by academics, professionals and policy makers over many decades, a common definition of self-help housing is not yet to be fully agreed. There are various definitions of self-help housing due to the wide range of this housing type. Manual self-help or self-build is the ultimate form, in which the owner-builder constructs or participates in the construction of his house.

According to Harms (1992), there are two definitions of self-help, for both the context of developing and developed countries. In a narrow meaning, self-help means individual household or group self-help, which relates to the more technical aspects of housing construction. In a wider meaning, self-help is collective actions around housing which relate more strongly to organizational and political actions in order to improve living conditions beyond housing. Harms (1992) stated that the main determinant of housing access for households in a capitalist context is the relationship between household income and housing cost. Any household trying to improve its housing and living conditions must be able to afford the cost of that housing within their income level. Any ways to reduce the cost and/or to increase income make this more achievable.

However, in many developing countries, self-help usually implies that construction is planned, organized, and supervised by the builder-owner who served as his own contractor. Thus, the person who wishes to build a dwelling will attempt to: a) mobilize funds (savings or loans); b) occupy the land; c) select a design and plan the house; d) employ the builders for the various stages of construction, supervise their work, and pay for it; e) purchase and transport building materials and safeguard them against theft (Lewin and Lewin, 1981). This definition is more suitable to the actual situation of self-help housing development in Vietnam and will be discussed further in the next chapters of this thesis, in terms of the housing development process and factors that drive this process of development with a particular focus in chapters six and seven. However, this definition does not cover the issues of land subdivision, permitting or servicing which are also important factors that affect the self-help housing development in Vietnam.

- *Theoretical research and debate on self-help housing*

Many developing countries initially (post-independence) tried to follow a formal route to housing policy, using subsidized public housing or support to home-ownership; but typically, such policies either failed completely or failed to help many of the poor, or even middle-income groups (Mathéy, 1992). By default, urbanization often proceeded

through illegal or unregulated occupation of land and informal development of housing, often initially of a temporary nature and very poor in quality. While often criticised and resisted by the authorities, informal housing became a large-scale reality on the ground. In response, aid agencies and advisers began to argue for policies which worked with the grain of this reality. Thus, self-help housing had become one of the popular solutions for housing problem in developing countries since the early 1980s (or even earlier in some cases) with many forms such as slum-and squatter-upgrading, sites-and-services, core housing project and others. Self-help housing projects and policies could be understood as an entry point for the urban poor to negotiate with the political classes (Mathéy, 1992).

The self-help debate had happened in the 1970s, with the peak of controversy between John Turner and Rod Burgess in 1978 (Burgess, 1978, Ward, 1982, Turner, 1978). The starting point of the self-help school's analysis is the normative proposition of basic housing as a social need or 'right', which puts housing at a root of the social necessity (UN-Habitat, 2003). According to Marcussen (1990), when people can make decisions on building their houses, they will try their best within the economic ability, social and cultural context. So, in order to support and manage housing in terms of planning, there must be a mechanism which could supply sufficient land and other resources such as building materials, financial support and also the basic infrastructure to people who want to build their own houses (Marcussen, 1990).

Marcussen (1990) also pointed out two forms of housing production in capitalist countries which are the *industrialized* form and the *petty commodity* form, while in the developing countries the two forms are the *manufactured form of petty commodity production* and the *self-help form of petty commodity production*. Petty commodity production means production organized in small enterprises whose owners themselves are direct producers such as mason, plumber or carpenter. In the *manufactured form*, housing production involves small entrepreneurs and traditional craftsmen and services on a demand for high-quality tailor-made housing among upper income groups. According to Marcussen, 'manufacture' refers to craft-like production organized in a more factory-like fashion, which means the housing sites are usually organised like a factory with discipline, hierarchy, repetition, and specialisation. While under the *self-help form*, the term 'self-help' means auto-construction and relates to the squatter sector, as people build their own houses mostly from throw-away materials with only small amounts of commercial materials (Marcussen, 1990). Besides that, Fiori and Ramirez (1992) had argued that self-help housing policies have the same meaning with non-

conventional solutions in which sites-and-services and upgrading are two main programmes.

Furthermore, according to Harms (1992), the debate on self-help housing practices, policies and its significance had begun in the 1950s both in the developing countries and advanced industrialized countries. In the developing world, academics usually attributed self-help to some common reasons such as poverty, inadequate housing provision, poor infrastructure and services in squatter areas and general problems of underdevelopment. While the other research in the developed context relate self-help to problems of urban renewal, rising housing cost and decreasing quality, 'shadow economy', industrial work value change and new forms of living (Harms, 1992).

Since the late 1960s, Turner and some others (Turner, 1968, Turner and Fichter, 1972, Pugh, 2001, Turner, 1976, Mathéy, 1992) have explored the potential of self-help housing and the role of self-help housing in solving the housing need for the urban poor. In recognizing the potential contribution of the poor to housing development, Turner argues that "in economies of scarcity, the mass of the common people, though poor, possess the bulk of the nation's human and material resources for housing" (Turner, 1976).

In the book Freedom to Build, Turner and Fichter (1972) distinguished between two fundamental value systems associated with housing: noun and verb perceptions. They argued that when housing is seen as a noun, it describes a commodity or product. If considered as a verb, it constituted a process or activity (Turner and Fichter, 1972). In this book, they said that:

> "*when the word housing is used to mean a stock of houses, understanding is clouded and actions are likely to be ineffective or even counter-productive ...when housing is misunderstood and treated as a commodity serving the interest of commercial or political manipulators, attention is focus on the end-product and diverted from the ways and means by which homes and neighborhoods are planned, built and maintained*".

Base on this paradigm, they argued for a revolutionary change from "housing for people" to "housing by people", recognizing that the process of housing requires the active and responsible involvement of users in its production and maintenance (Turner and Fichter, 1972). A wider picture of informal housing has gradually emerged since then.

The book '*Spontaneous Shelter'* (Patton, 1988) has provided a comprehensive view of user involvement in the planning, design, economic, cultural, and technical aspects of housing provision in the developing countries in the 1980s. The issues raised in this book are not about housing alone but include many other aspects of shelter: location; land tenure; related support and community services; building codes and their restrictions; finance and credit mechanisms; and the capacity of governments to respond to citizen needs.

This view point of the housing problem enabled and informed some projects in upgrading low-income settlements in some Third World countries. These self-help projects relied on the combined resources of the public and private sectors. Generally, the government provides land and infrastructure while the dwellers concentrate their resources on house building and upgrading. The approach of site and service and upgrading has been widely discussed in Third World housing literature (Turner and Fichter, 1972, Turner, 1976, Payne, 1977, Ward, 1982, Mathéy, 1992).

However, this approach was subjected to some criticisms. Ward (1982) argued that:

> "*self-help allows labor to be exploited twice over – first at work, second in the construction of the home; that it maintains the status quo and retards necessary structure change; ….that its romanticism obscures the real suffering experienced and self-help becomes a blueprint for its continuance as governments adopt a laissez-faire policy; that it simply provides a short-terms breathing space and present no long-term solution; that it rationalizes poverty*" (Ward, 1982).

Moreover, according to Marcuse (1992), at the household level, housing is the most important property and the biggest single spending. At the national level, housing generally consumes a significant amount of gross national product. However, Marcuse (1992) argued that the idea of letting people build their own houses to satisfy their social and cultural need, without having regard to general laws of commodity production, is a theoretical misconception. And there is the same problem with the idea that people's self-help activities would be given support by the state. In this paper he pointed out ten major problems of self-help housing: 1) self-help cannot be a substitute for resources indispensable for housing provision; 2) self-help cannot deal with the host of problem that require centralized decision-making; 3) self-help is likely to produce only temporary

solutions to immediate housing problems; 4) self-help provides no evaluative mechanism; 5) self-help is inefficient; 6) self-help is economically regressive; 7) self-help results in a lowering of housing standards; 8) self-help can be political reactionary; 9) self-help can socially divisive; 10) self-help exploits the labour of its participants (Marcuse, 1992). Although these critics of self-help seem to be right in the context of developed countries, however, in the context of some developing countries like Vietnam, some of these problems of self-help housing are wrong such as: self-help could be efficient and could provide higher housing standard.

2.3 Self-help housing in developing countries

Informal and self-help housing are very widespread internationally, especially in developing countries, and the issues of how to help, support or improve such areas are generally recognized as important by international agencies (Gilbert, 2007, Ahmed et al., 2010). Hence, in recent year there were many projects sponsored by international organizations such as the World Bank with the Urban Upgrading Projects in some developing countries including Vietnam.

Self-help and self-build housing contribute from 30 up to 70 percent of housing stock in many cities and towns in developing countries (Pugh, 2000). Up to now, self-help housing research been mainly pursued within a capitalist context, while few research studies are focused on the socialist countries. One of the reasons for this imbalance is the decrease in the number of the socialist countries in the world. Another reason may be that informal housing is less common in socialist countries, or perhaps that it takes different forms, such as China's '*urban villages'* (Fong, 1989, Wang, 2000, Wang et al., 2009).

It is particularly useful to look at comparative studies of different developing countries. Mahmud and Duyar-Kienast (2001) studied the similarities and dissimilarities among spontaneous settlements '*Gecekondu*' in Turkey and '*Bustees*' in Bangladesh. They have focused on five important issues: location of the settlements within the city, appropriation of land and ownership patterns, economic possibilities of the inhabitants, cultural and local dynamics of formation and use of space, and the transformation of the settlements. They found that 'bustee' dwellers make self-initiated extensions when the family gets bigger and when they are in need of more space. Moreover, some parts of the 'bustees' are sometimes transformed into small shops or income-generating enterprises (Mahmud and Duyar-Kienast, 2001).

Pugh (2000) discussed some issues on the changes over time of households and communities in their attitudes and approaches towards their housing and the environment. These changes were affected by the improvements from the international agencies and governments in the sanitary services and the legitimacy of property and occupancy rights in some squatter settlements.

There is some other research on self-help housing practice in developing countries such as Colombia, Thailand and China. In the context of Pereira in Colombia, Gough (1998) has argued that self-help settlements are dominated by a land market rather than by a housing market. Very few self-help houses enter the property market, because many self-help households have no intention of selling their house after all the hard work that went into building it. It is also difficult for households who wish to purchase dwellings in self-help settlements to raise the necessary finance; and the lack of title deeds is probably also a limiting factor (Gough, 1998).

- *Self-help housing in Thailand*

The case of Thailand is particularly relevant, as another developing country and Vietnam neighbour which also has dealt with the similar problem of informal self-help housing for many years (Chiu, 1984, Archer, 2012, Islam and Sheng, 1989, Sheng, 1989). Yap and De Wandeler (2010) analyzed the '*Baan Mankong*' program in Thailand, which supported community-based organizations in informal settlements to build city-wide networks that help them to achieve improvements for their residents. For example, they enable the communities to negotiate better deals with landowners for the lease or purchase of land, and to assist in the improvement of both housing and infrastructure. They found that the program, while effective, also has some limitations and concluded that Thailand needs a national housing policy that promotes adequate housing for all. Besides that, Boonyabancha (2009) describes the slum upgrading program which supports community organizations to help themselves in solving the land problem for housing. Community organizations form their own savings groups and draw on soft loans, and find solutions that work best for them in terms of location, price and tenure, and negotiate with the landowners. Infrastructure subsidies can be drawn on to support the upgrading, and housing may be built or just improved. Collective land ownership strengthens the community processes that help households make the challenging transition from informal to formal, provides protection against market forces that often lead poorer households to sell, and encourages on-going community responses and less hierarchic community

organization. Larger citywide networks of community groups work with local governments and other civil society groups to help find land solutions for all those living in informal settlements (Boonyabancha, 2009).

- *Self-help housing in China*

In China, after decades of reforming the land and housing policies from a centralised construction and allocation of housing system to a decentralised and open housing market, the country has made an important success in housing hundreds of million migrants from rural to urban areas (Badcock, 1986, Chen et al., 2011, Chiu, 2000, Dowall, 1993, Fong, 1989, Wang, 2000). In this process, beside the mass-production of housing in Chinese cities by developers, self-help housing has also contributed an important role in providing home for the urban low-income group of people. Zhang (2011) argued that the formation of Chinese informal settlements is not completely illegal, but un-planned and unregulated. He studied the political and economic contexts, as well as the ways in which '*Chengzhongcuns*' (former rural village enclaves within expanding urban areas) are transformed into functional but unregulated urban space. He also formed a policy approach towards formalizing '*Chengzhongcuns*' and confrontations involved in government-led redevelopment. The analysis illustrated how spatial informality was shaped by the interaction of economic interests and political considerations, in a post-socialist economy, while retaining the rural–urban dualism of land ownership and the control of urban citizenship. In another paper, Zhang et al. (2003) believed that China's existing practice of self-help housing in '*Chengzhongcun*' would be a practical and optimal model for the development of low-cost migrant housing. In this model, the construction of low-cost housing is on a self-help basis, incurring no cost to the government. It is the combination of forces between the villagers, the migrants and even the district governments that brings a feasible and mutually beneficial development of low-cost housing for migrants, which contributes to the economic and social development of the local villages and to that of the whole city as well. They concluded that the '*Chengzhongcun*' case has been a good practice in dealing with migrant housing under the Chinese reality and has enriched the international experience of self-help in housing. However, there are also many examples in China where spontaneous evolution of 'urban villages' has been overridden by local government or developer-led comprehensive redevelopment.

- *Self-help housing in other developing countries*

In further research, by using the case study of Cape Town in South Africa, Abbott and Douglas (2003) have argued that the future development of informal settlements in South African cities is continuous and foreseeable, which leads them to suggest a necessary change in the housing policy framework. They also indicate that informal settlements in South African cities would not be eliminated, nor even reduced, by building more formal housing. Reducing the growth rate of informal settlements is the best thing to aim at for local government. He concludes that it is equally important to have a development strategy at both the individual settlement and the metropolitan level, because informal settlements have a great impact on wider urban development strategy. An integrated longitudinal spatial survey and social survey could provide an evidence base for managing and supporting informal settlements in African cities (Abbott and Douglas, 2003).

In Mexico City, since the 1960s, self-help housing has bloomed at a massive scale, as a consequence of population and urban growth. Bredenoord and Verkoren (2010) have explored the changes in low and middle-income housing markets in Mexico since the 1960s, by investigating the housing policies and programs. They argue that insufficient land supply caused a big problem in urban housing market. The proper accommodation of the urban poor in new peripheral settlements will be especially important to prevent new spontaneous invasions; hence the emergence of new irregular settlements.

Besides that, Aguilar and Santos (2011) analyzed the effectiveness of land use policy in Mexico City in controlling the expansion of informal human settlements in peri-urban zones of high ecological value. They argued that Mexico City's land-use policy has been reactive and internally inconsistent, failing to take informal settlements into account; it has not offered the poor access to housing with adequate services, nor greater security in terms of land tenure; and it lacks the necessary financial resources and institutional capabilities for providing solutions to these problems. They concluded that local government exhibits an inability to confront the new challenge of urban sustainability, and resorts to conventional solutions which give rise to contradictory situations. This particularly arises where political decision-making prevails over ecological considerations, so land-use policy is permissive and does not halt informal urban expansion in areas of high environmental value.

- *Informal housing and urban growth simulation*

Informality is firmly cast as not only one of the key problems facing cities and urban dwellers, but also one of the major challenges to both long-standing and contemporary approaches to planning (Porter et al., 2011). In its Global Report on Human Settlements in 2009, UN-Habitat placed the challenge, and much of the cause, of the world's one billion urban dwellers who live in squatter settlements (32% of the global urban population) squarely at the feet of a failing planning approach. It said that planning is still weak in terms of how to deal with the major sustainable urban challenges of the twenty-first century: climate change, resource depletion, rapid urbanization, poverty and informality (Habitat, 2009).

Tsenkova (2012) explored the possible transformation of informal developments in southeast Europe into viable neighbourhoods through strategic urban plans. Informal settlements grew rapidly in the 1990s, accommodating thousands of economic migrants, refugees, and internally displaced people. Although this phenomenon had reshaped post-socialist cities in the region in a profound way, there had been limited attempts to resolve the economic, social, and spatial challenges associated with legalization and integration.

In a Pacific Region context, Jones (2012) studied the growth of squatter and informal settlements by exploring the range of drivers that entice people to move and make their homes in squatter and informal settlements. He argued that policymakers need to understand the issues through the eyes of the squatters and settlers themselves. Current views, ideas, and the negative language used to conceptualise squatter and informal settlements, need to be contested. Asking who participates, how they govern, and who builds Pacific towns and cities, and how this contributes to economic productivity, liveability and sustainability needs to be mainstreamed into the development debate at the national, city and town levels (Jones, 2012).

Del Mistro and A. Hensher (2009) described a model that estimates the value that residents of an informal settlement place on aspects such as level of municipal engineering services, location and type of upgrade, and the size of the dwelling. They provided a method to develop and test many housing alternatives as part of involving the community in the upgrading of an informal settlement. They suggested that a more nuanced approach is not only possible but could have cost and utility advantages. The model suggested that it is unlikely that all residents would choose one upgrade solution if alternatives were offered to them. This finding supported the need for residents to have a choice, as indicated by the literature and government policy. On the basis of perceived

utility, the application of the model found that incremental upgrading is better than the full upgrading if the time to complete the delivery of a programme is greater than seven years (Del Mistro and A. Hensher, 2009).

In less developed countries, the recent high rates of urban expansion are often associated with the emergence of informal settlements that may exaggerate social and environmental problems and impede sustainable development. An enhanced understanding of informal development may, therefore, be a key for future success in its effective management. Dubovyk et al. (2011) explored the possibilities offered by progress in Geo-Information Science and spatial modelling to improve understanding of informal settlement development through comprehensive spatio-temporal analyses.

Lall et al. (2006) investigated residential mobility among slum-dwellers in Bhopal, India. They found that one in five households succeeds in leaving a slum settlement and a major determinant was the ability to save on a regular basis. Due to limited outreach of institutional housing finance, most slum-dwellers relied solely on household savings for purchasing a house. Strategies to address the problem of informal settlements had focused on slum upgrading, sites-and-services programmes and tenure security. There had been less attention on what enables slum-dwellers to transition into the formal housing sector without direct intervention.

Sengupta (2010) studied self-help housing in Kolkata, India in seeking to answer a simple question, of why the concept of self-help has not been recognised as a viable policy option for a city with widespread slums and ‘bustee’ settlements, by visiting the complex urban context of Kolkata set within the city's politics, poverty and policies. He concluded that there is a need to recognise the existing structural duality in the city and support self-help housing as a parallel housing approach.

Drawing on field research carried out in seven informal settlements in Wewak, East Sepik Province, Papua New Guinea, Numbasa and Koczberski (2012) described the historical, trading and marital ties between landowners and the original settler community. They focused on how access rights were maintained and had changed over time as the social and exchange relationships deteriorated between second generation urban migrants and younger-generation landowners. The weakening of the social relationships between these two groups undermined the long-term use rights of migrants. By examining the changing tenure security of second-generation migrants, they showed that whilst informal land markets performed an important role in housing provision for

the urban poor they often failed to deliver long-term tenure security (Numbasa and Koczberski, 2012).

Parsa et al. (2011) studied the responsiveness of the informal property market and management systems towards the introduction of land registration for informal settlements in Tanzania. They suggested that the introduction of residential licenses, whilst potentially assisting in creating legal certainty, had not resulted in the financial sector accepting them as full security against loans. Accessing credit by the poor however had not yet been fully realised resulting in some further hurdles for the financial sector to overcome. Finally, and of some significance was that the registration of property in the informal settlements had provided the opportunity of formal property transactions within these settlements (Parsa et al., 2011).

Tunas and Peresthu (2010) studied the factors that led to the formation of kampongs in Indonesia and showed how kampongs benefit from or are adversely affected by the government housing policies. Self-help housing in Indonesia was related strongly to the kampong; being mostly a self-initiated and self-constructed urban settlement, with sometimes low housing qualities and always no security of tenure. In these low-cost self-manage residential areas, the residents relied mainly on their own efforts and their social networks. Many of the kampongs were improved physically as consequences of the huge Kampong Improvements Programmes, but home improvement was never a main issue as the focus was on infrastructure and service. Other kampongs were informal and illegal as well, or even dangerous because of the badly chosen locations. Nevertheless, in a country where low-cost housing programmes were far from adequate, the kampongs were substantial and practical accommodation of the many urban low-income families.

The simulation of the growth of informal settlements can be an essential building block to manage urbanization processes in cities of the developing world. Augustijn-Beckers et al. (2011) used agent-based modelling to develop a vector-based, micro-scale housing model to simulate the growth of informal settlements. A prototype of the housing model was implemented for Dares Salaam, Tanzania. The results showed that such a vector-based housing model built on three simple rules of spatial change can successfully simulate the housing pattern of informal settlements growth.

Urban growth simulation has attracted many researchers, as it provides a highly visual approach by exploiting the growth in collection and use of geo-spatial, computational data and hardware resources. Some of this research focuses on simulating

the growth of cities and settlements in developing countries by using different approaches and techniques (Sobreira and Gomes, 2001, Sobreira, 2003, Barros, 2004, Mundia and Aniya, 2007, Thy et al., 2010, Augustijn-Beckers et al., 2011).

Abbott (2001) has explored the integration of informal housing into the formal city by using spatial information technology. He argues that it is necessary to work in a practical synergy between planning and development so that it can control the development of informal settlement in a structured way rather than leave it randomly happen in both the scale of local and metropolitan level. He also points out that the development of informal settlements would only be successful if there is a strong social integration of informal settlement community into the formal city. He argues that upgrading the informal settlements is a gradual process in both physical and social-economic changes and this process could be monitored and tracked by a digital system of spatial referencing. And finally, he states that upgrading has a close relationship with economic development and the labor market in particular, and that economic factors are the most important reasons why people move into informal settlements in the city.

In summary, informal housing has attracted many academics and policy makers as it has become a major approach for housing the urban poor in developing countries. Most of the above research focused on giving suggestions for local authorities to improve housing policies, while others explored the identities of informal housing in different cases by using different approaches including simulation. However, few research has focused on countries in transition economy such as Vietnam which will be discussed in the next section.

2.4 Urban planning and housing development: a general review

- *Housing development in Vietnam*

In the developed world, housing development may be described as a business of supplying the right type and number of house in the right location at the right time. This business focuses on three main aspects of a typical good which are quantity, quality and accessibility (Golland and Blake, 2004). Housing development, whether provided through a subsidy or free market economy, is responsible for creating a demand for wide range of professional services such as mortgage lenders, building inspectors, property insurers and marketing consultants. However, in developing countries, housing is not always a business, but often part of the household and informal economies.

In the case of Vietnam, Coit (1998) believed that the government should encourage local community groups to become involved or take over the production or the rehabilitation of housing, while the government supplies or facilitates easy credit, tenure of land, the essential infrastructure, technical assistance and the legal support, rather than directly providing shelter to the urban poor. However, also in this article, she argued that the new liberal economic policy in Vietnam has had a negative effect on housing the poor, by using a case study of a non-governmental organization-assisted slum upgrading project in a poor neighbourhood of Ho Chi Minh City. In another more recent piece of research, (Gough and Tran, 2009) studied the emerging inequalities in a residential area of Hanoi and argued that, despite moving towards a more market-oriented economy, the new housing system is still built on old ideologies and supports the old hierarchy, and so still contributes to strengthening inequality between the better-off and worse-off residents. Huong and Sajor (2010) argued that the development and spread of 'gated communities' in Vietnam resulted from the major policy shifts of housing privatization and democratization at the grassroots.

Koh (2004) studied the illegal construction in Hanoi by examining the irrationality of the housing regime that led to widespread offences against construction rules, and then showed why and how local administrators may or may not enforce rules. He concluded that the weak ability of the state in enforcing its housing construction rules in Hanoi has been prominent, and people might observe housing construction and renovation rules if the rules were easy to follow, and the residents could meet their basic and urgent housing needs by abiding by those rules.

Minnery et al. (2013) conducted a comparative study in slum upgrading in three Southeast Asian countries including Vietnam, Indonesia and the Philippines. They argued that issues of security of tenure, governance and institutional arrangements, public participation, up-scaling and extension of programs, and the connections between slum upgrading and sustainable livelihoods are crucial aspects of the effective development and implementation of slum upgrading programs. Regarding security of tenure, they found that all the communities in their study concerned in land and house tenure, and the informal settlement's residents could not build up their permanent livelihoods without some form of tenure security. Besides that, they argued that the overly complex institutional and administrative arrangements stymied efforts to ameliorate slum conditions. Moreover, they emphasized the role of the community leaders in motivating residents to participate in upgrading activities. Finally, they argued that there were no

significant improvements in income, livelihood or skills upgrading after slum upgrading programs. The, residents mainly remained in a state of income poverty, although housed in better accommodation and with better infrastructure.

- *Urban planning*

Planning plays an important role in urban and housing development. This section discusses some common concepts on urban planning and its relationship with urban housing development. In the UK, planning system was defined as a set of instruments and institution arrangements that constitute a framework for the management of land-use change (Healey, 1988, Gurran and Bramley, 2017). Besides that, some academic researchers have explored the relationship between planning and housing supply in the context of a developed country with a market system (Bramley et al., 1995, Bramley et al., 2004, Gurran and Bramley, 2017). For example, Bramley (2002) analyzed the impact of the amount and type of available land on new housing supply and market price outcomes in England. He also discusses the conceptualisation of planning and the policy forces and issues which have reinforced this area of regulation. He used the empirical model to illustrate and measure the market impacts of planning controls.

Hopkins (2001) states that plans could provide information about interdependent decisions, governance make collective choices, and regulations set rights. Plan can work as agendas, policies, visions, designs and strategies. In that, strategies are the most fundamental aspects of plans for urban development because they directly account for actions, outcomes, intentions and uncertainty. Designs focus primarily on outcomes. Visions, agendas and policies are aspects of how plans work, but they are also the phenomenon that can exist separately from plans. Plans face uncertainty about demand or need of housing, commercial, and industrial facilities. These uncertainties derive from uncertainties about population increase, migration, household size, retail and manufacturing technologies, comparative advantage in labour costs, beliefs and attitudes about how the world works, and tastes or preferences. Plans are not inherently about government, but governments do make plans. A government may make a plan because the plan is focused on that government's own investments and regulations or because the plan is a collective good (Hopkins, 2001).

When discussed the complexity and uncertainty of planning, Hopkins (2001) compared the planning activity in a complex system of urban development is just like padding a boat in moving water, which implied that:

"*You can move in directions other than the stream direction. You can affect the outcomes of urban development by your actions in combination with the complex system;*

You must always be monitoring, planning and acting. Making plans for urban development is something you do constantly, not once;

You must be able to forecast how the river current in combination with your paddling will carry your canoe;

You must be able to match available actions with impending problems or opportunities. You must choose investments and regulations that will move you to the opportunity;

Your available actions are interdependent. Which actions you choose to take now will affect where you will end up and thus will affect the results from other actions in the future" (Hopkins, 2001)

Hopkins (2001) also point out four major characteristics that a plan has:

*"*Interdependence*: means that the value of the outcome of one action depends on another action and vice versa;*

Indivisibility*: means that we cannot take arbitrarily small increments of actions;*

Irreversibility*: means that we cannot take an action, then undo it or replace it with another action without incurring significant costs;*

Imperfect foresight*: means that we do not know the future values of variables pertinent to our decision making" (Hopkins, 2001)*

According to Hopkins (2001) decisions in urban planning are made within by organizations such as planning agencies, local public utilities, land development firms, and municipal governments. Decision makers have limited attention. They cannot focus on everything, much less everything at once. They cannot focus on many decisions, many issues, and many solutions. Decision makers are looking for things to do within their limited budget of attention (Hopkins, 2001). This argument seems to be more correct in the context of the less developed countries where resources are very limited. This insight can be related to a strong theme in the analysis of decision-making in both public policy context and business context (e.g. Herbert Simon 'bounded rationality' or Wildavsky 'incrementalism'). These approaches are contrasted with the 'rational comprehensive model' which tends to be embodied in the theory/ideology/recommended good practice of planning.

Furthermore, Adams and Watkins (2008) stated that the planning system plays a pivotal role in determining the location of new housing development by providing the main arena through which policymaker can influence development. He said that the operation of planning system and the way in which it performs this role has long been surrounded by political controversy as a variety of groups and interests have sought to shape the direction and implementation of planning policy for their own advantage. The planning system, together with elements of urban regeneration policy, provides the state with a number of important levers with which to influence the location of housing development.

Also in the context of the UK planning system, Hull (1997) argued that the process of forward planning for housing suffers from the lack of reliable market and migration pattern data. She suggested that a prerequisite for more equitable housing outcomes is the systematic collection of data concerning the building stock and housing need within authority areas.

Besides that, Adams and Watkins (2008) said that most models of the residential development process are constructed around the conversion of green-field land to new housing estates. In such models, they argued that housing demand was primarily driven by economic growth and demographic change to the extent that the outward expansion of urban residential areas could be considered as both a source and a reflection of a prosperous society. In contrast, models that seek to capture the essentials of brown-field redevelopment are more likely to be policy-led than market-led, even if such policies operate primarily by seeking to influence market decisions, for example, through taxes or subsidies (Adams and Watkins, 2008).

Moreover, Adams and Watkins (2008) also stated that the planning system provides the framework within which complicated interactions between a range of public and private, political and professional interest groups take place. These interactions ensure that planning decisions are essentially political in nature, occurring as a result of a process of bargaining and negotiation, rather than as outputs from a purely technical process.

2.5 Overview of housing development in developing countries

Vietnam is among the group of developing countries that has achieved the most significant improvements in slum condition in Asia, including others such as China, India, Indonesia and Turkey (UN-Habitat, 2010). This may be partly because these countries

have enjoyed high levels of economic growth in recent decades. In just twenty years, the percentage of slum decreased from over 50 to under 35 percent (see more detail in Figure 4).

In some developing countries, urban sprawl is the consequence of poverty, not affluence, as informal unplanned settlements on the periphery spring up in response to a lack of affordable housing options within the city itself. In this sense, urban sprawl results from a lack of policy attention to current urban challenges such as slums, land, services or transport, and more particularly an inability to anticipate urban growth, including through provision of land for the urbanizing poor. From a social and spatial perspective, urban sprawl contributes to the urban divide. It has a negative impact not only on the infrastructure and sustainability of cities, but also on social cohesion, often exacerbating social segregation and segmentation. Urban sprawl has a wide range of implications. In most cases, it will lead to an increase in the cost of public infrastructure and of residential and commercial development. Moreover, in many places, urban sprawl causes significant losses of prime farmland as new developments absorb arable land. In the absence of proper planning, urban sprawl also contributes to the degradation of a number of environmental resources (UN-Habitat, 2010).

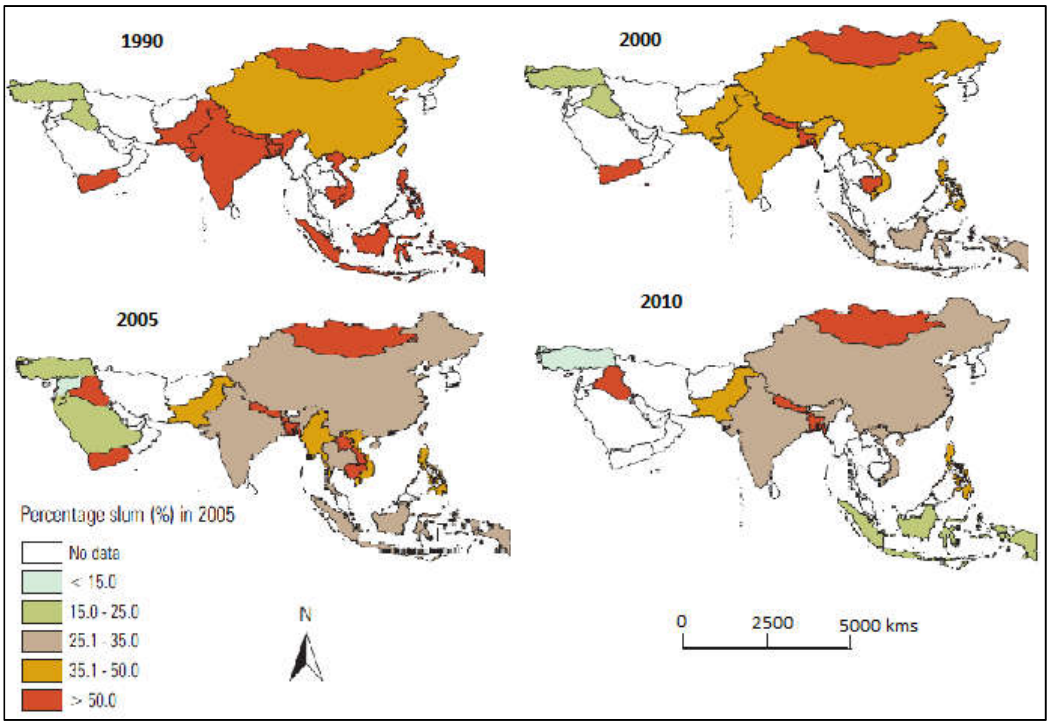
Abbott (2001) tried to analyse the integration of the informal housing into a formal city by using the spatial information technology with the particular case of Cape Town in South Africa. He argued that it is necessary to work in real time for the practical synergy between planning and development in order to give a structural form for informal settlement, rather than seeing random patterns of development in both the local and metropolitan level. He also argued that the social integration of the informal settlement community into the formal city is the key for the success of an informal settlement's development. That integration analysis requires a large scale of social data which is also closely linked with the spatial data. He also found that there is a symbiosis in the informal settlement between space and people, which does not exist in a newly formal developed settlement (Abbott, 2001).

Abbott (2001) found that the process of upgrading informal settlements is incremental and refers not only to the physical structure but also the social and economic change within the upgrading process. And he argued that only a digital system of spatial referencing could effectively monitor and track these changes during the upgrading process of the informal settlement. Finally, he concluded that the reason why people move

to informal settlement in the city is primarily an economic reason, so that the city should be able to track the movement of labour, the relationship between formal employment and source of labour and also the nature and growth of the informal sector in order to achieve an effective economic development (Abbott, 2001).

There have also been some efforts to ty to establish what urban planning could do in order to cope with the global climate issues such as climate change (Blakely, 2007, Wamsler et al., 2013, Hurlimann et al., 2014). However, due to the diversity and complexity of the urban systems, the task of finding a common solution for climate change adaptation in urban areas all over the world seems very difficult if not impossible.

Figure 4: Percentage change in slum proportions in selected countries in Asia between 1990 and 2010



Source: (UN-Habitat, 2010)

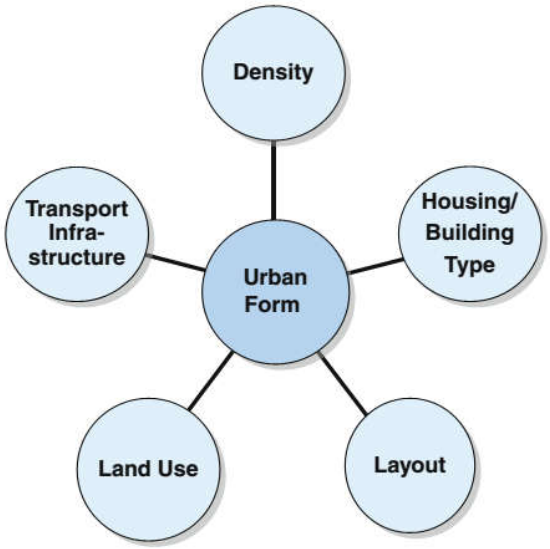
2.6 Urban form and sustainability issues

- *Urban form*

It is argued that elements of urban form, namely density, housing type, layout, land use and infrastructure, influence sustainability and human behavior (Dempsey et al., 2010) (see Figure 5). Bramley et al. (2010) argue that urban forms must be acceptable to

people who live, work and interact in them. In that research, they explore the relationship between urban form and social sustainability and find out the lack of coherence and shared understanding of the social dimension of sustainability. They argue that social sustainability is very important and policy-relevant which represents both public goods and private choice. They strongly argue that social sustainability saves public costs, promote happiness and contribute to the kind of urban vitality which underpins modern economic competitiveness (Bramley et al., 2010). They find that lower density suburbs provide better results in most aspects of social sustainability. That finding somehow challenges the argument that compact city is always more sustainable.

Figure 5: Elements of urban form



Source: (Dempsey et al., 2010)

- *Urban form models*

This section reviews some of the main urban form models including the compact city model, new urbanism, smart growth and transit-oriented development, which were developed in Europe and the USA in the 1990s as a critical response to unsatisfactory urban policies and to counteract the environmental ills brought about by the urban sprawl.

New urbanism, a design-based sustainable urban form model, explicitly focuses on the improvement of livability at the neighborhood level. Deriving inspiration from the classic town planning practices, various architects of early twentieth century (Peter Katz, Andes Duany, Peter Calthorpe and other) advocated the concept of new urbanism and

formed the Congress of the New Urbanism in the USA in 1993. New urbanism advocates design-based strategies based on traditional urban forms to help arrest suburban sprawl and inner-city decline and to build and rebuild neighborhoods and cities. According to Hikichi (2003) new urbanism promotes neighborhoods with open spaces for civic opportunities, sidewalks and streets based on the grid system, connectivity with developments and surrounding residential areas, and an integrated use of mixed residential, retail, and office space within walking distance from residential units. New urbanists believe that their residential design features can satisfy residents by improving the livability, encouraging local walking and use, supporting pleasing neighborhood contacts, and bolstering a strong sense of community, while increasing residential densities beyond the suburban norm (Leccese and McCormick, 2000). The new urbanists generally advocate returning to pre-World War II town planning principles, with an emphasis on designs that promote walkable neighborhoods with mixed land uses and density as a way of making walking, cycling, and public transit use viable alternatives to automobile use (Katz et al., 1994).

Smart growth models through their design principles implicitly aim at improving livability. Like new urbanism, in the 1990, the smart growth movement emerged in the USA (Burchell et al., 2000). It addresses three interrelated subjects: density of urban development, the spatial separation of land-use functions and the relation between land use and mobility patterns. Smart growth mainly focuses on the management of the growth through redeveloping and infilling of the existing urbanized areas rather than encouraging sprawl. The principles include mixed land use, densification, preserving farmland and open space, urban growth boundaries, creating walkable communities, and providing a range of transportation choice (Tregoning et al., 2002). In another paper Nam and Pardo (2011) offers strategic principles aligning to the three main dimensions (technology, people, and institutions) of smart city: integration of infrastructures and technology-mediated services, social learning for strengthening human infrastructure, and governance for the institutional improvement and citizen engagement.

Transit-oriented development (TOD) is a development pattern that is focused on its proximity and reliance on high-frequency transit. TOD is medium-to-high density, and typically features a mix of uses, such as apartment units, retail space, and offices. Transit-oriented development promotes not only transit but also a more connected and safe walking and biking network (Bishop, 2015). TOD, which has various definitions, is basically a mixed-use community that encourages people to live near transit services and

to decrease their dependence on driving. The emphasis of TOD is to plan balanced, mixed-use areas with a simple cluster of housing, retail space, and offices within a one-quarter mile walking radius of a light rail system and thus create a sense of place as well as support the economy. In a nutshell, the hallmarks of transit-oriented development are: 1) enhanced mobility and environment; 2) pedestrian friendliness; 3) alternative suburban living and working environments; 4) neighborhood revitalization; 5) public safety; and 6) public celebration (Bernick and Cervero, 1996). To make TOD a success, the density needs to be increased to a level that would support the transit (Churchman, 1999) and reduce the automobile traffic, and with the provision of other necessary facilities, the community served by the transit will enjoy better livability.

Unlike the other three models, the compact city model was advocated in the UK and part of Europe in the 1990s. The compact city concept developed to counteract the environmental ills of the low-rise and sprawling cities of the West and to improve socio-spatial equity (Breheny, 1992, Burton et al., 2003). Major attributes of compact cities include multi-nodal urban form, a well-defined boundary containing city growth, high density and mixed land-use patterns enabling the provision of public facilities and services within walking distance and heavy reliance on public transport (Jenks et al., 1996). It is argued that compact cities produced through a process of compaction or densification can provide benefits in terms of resource efficiency, reduced travel demand and livable environments (Jenks and Burgess, 2000). Furthermore, the strategies of compact development can be implemented at different spatial scales (Yang, 2008). Burton et al. (2003) have summarized the claimed benefits of the compact city as: support for public transport and walking and cycling; better access to services and facilities; more efficient utility and infrastructure provision; conservation of the countryside; less need to travel by car, thus reducing fuel emissions and pollution; and revitalization and regeneration of inner urban areas. However, to date, there is little empirical evidence to support some of these claims, and the sustainability of the compact city continues to be contended (Breheny, 1992, Jenks et al., 1996). Furthermore, different countries are at different stages of development and thus will achieve the sustainability benefits according to their policy agendas. The disbenefits arising from compact development such as overcrowding, deteriorating living conditions and residential space, poor housing affordability and increasing pollution problems (Breheny, 1992) have also been highly discussed in the sustainability literature.

- *Sustainable urban development*

In the world nowadays, the most popular concept of sustainable development is the one that pointed out in the report of the World Commission on Environment and Development in 1987 as following '*Humanity has the ability to make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs*' (WCED, 1987). Since then, this concept has spread into many fields of life including urban development. In the search for the development towards a sustainable city, many researchers have confirmed that urban form play a significant role in achieving the needs and characteristics that a sustainable city should have (Jenks et al., 2013).

The research on sustainable urban development has grown up soon after the rise of the sustainable development concept in 1980s, as urban areas are the most important locus for development all over the world. Cities are now housing more than half of the world total population which is more than 7 billion at the end of 2015. In a series of articles from 1995 to 1997, Drakakis had explored the issues on sustainable urban development in the context of the developing countries (Drakakis-Smith, 1995, Drakakis-Smith, 1996b, Drakakis-Smith, 1997, Drakakis-Smith, 1996a).

Urban areas and cities in the world nowadays are hopefully moving forward to a more sustainable future. However, the levels of perception and action in reality are much different between the developed and developing world. In the built environment, the research on sustainability issues are usually focused on density, compactness and design with no or little concentration on human behavior or lifestyles related to sustainable development (Jenks and Jones, 2010).

As mention at the beginning of this chapter, the literature has also looked at how a compact city, especially in terms of the housing pattern, could provide a more sustainable pathway for urban development. Adams and Watkins (2008) argued that sustainable compact cities can only be achieved if the process of development is better managed and the products of development are of higher quality. They also suggested that this has important implications for both private investment and public policy. In particular, they said that excessive reliance should not be placed on the planning system alone as a policy measure, and planning should form part of a broader land policy.

Gordon and Richardson (1997) discussed the debate in the American planning community on whether a compact city should be a desirable planning goal or not. They also mentioned another problem in discussions of the compact city which is the pejorative

use of the term "urban sprawl." It conjures up connotations of the general meaning of "sprawl" as an unaesthetic, lazy and undisciplined form of body expression. The original application of this term in a planning context was to describe pre-dominantly commercial "ribbon" development along both sides of highways over considerable distances. Now the term has been generalized to include almost any kind of low-density suburban development and "leapfrog" development (Altshuler, 1977). But that suburbanization itself should be an object of attack is amazing, given the expressed preferences of the majority of Americans for suburban lifestyles and the supposed sanctity of consumer sovereignty (Gordon and Richardson, 1997).

- *Sustainability issues in housing development*

Adams and Watkins (2008) argued that the delivery of sustainable residential development is not merely a matter of design and location, but critically requires effective institutional mechanism and policies to bring about a much higher quality of development than in the recent past.

According to Breheny et al. (1993) a new settlement can be defined as 'a free-standing settlement promoted by the private or public sector interests, where the completed new development-of whatever size- constitutes 50 percent or more of the total size of the settlement, measured in terms of population or dwellings'. They also argued that new settlements have potential to incorporate environmentally sustainable features, balance compactness with greenness and give priority to non-car forms of transport.

Furthermore, as Jenks et al. (1996) advocated, it might be more constructive to identify a number of sustainable forms rather than search for the ultimate sustainable form. And in this context, Adams and Watkins (2008) said that the sustainability of new housing development is dependent on many other factors as well as location, in particular circumstances, alternative patterns of development may each have their own contribution to make to sustainable development.

Ross et al. (2010) assessed nine sustainable housing projects across the developing world and South Africa to draw best practice lessons for the construction of sustainable housing for low-income communities in South Africa. They argued that the 'minimization of materials' was the most widely adopted sustainability criterion, whilst the 're-use of materials' was the least. They also said that user support and acceptability, together with adequate funding, are crucial to the success of sustainable settlements.

In the context Vietnam, Ahmed et al. (2010) studied the current challenges in balancing affordability and sustainability in urban housing development. They explored Vietnam's lack of adequate and affordable housing and the problem of its urban slums. Finally, they suggested some synergistic strategies suitable for the Vietnamese context for sustainable low-income housing development in these two cities of HCMC and Hanoi. Sustainable housing has to ensure contextual suitability in all dimensions: environmental, social, cultural, economic, and even time. To do so, all actors involved in housing developments including the producers and users have to collaborate in the development processes (Huong and Soebarto, 2003).

2.7 Research on housing and land policies in Vietnam

In the past three decades, the Vietnamese housing system has attracted some researchers as part of a successful economic reform and transition. Huge progress in housing policy has been done in the effort to move from a subsidized housing system toward a market system. Vinh and Leaf (1996) argued that one significant outcome of housing policy change in Vietnam has been the growth of 'informal' or 'popular' housing settlements. Popular housing could be looked upon as intrinsically a 'Đổi mới' phenomenon as it arose from such policy changes as the loss of housing subsidy, the relaxation of controls on population movement and the institutionalisation of land markets to stimulate urban development. However, the policy of cooperation between the state and the people for the construction and renovation of housing highlighted two major problems: inadequate technical expertise to direct and control decentralised action, and insufficient local funds. Trinh and Parenteau (1991) argued that stopping the production of subsidised housing could not have a great impact because, on the one hand, subsidised housing was essentially meant for civil servants and army and policy personnel and, on the other hand, the persons entitled to participate in the programme of cooperation between the state and the people are mainly members of the civil service and the army. The persons who occupied this subsidised accommodation have virtually never paid rent to the state. This type of expenditure consequently did not form part of their household budget. Because living rent-free conferred an immense social and economic advantage, the salary structure of these person was kept low (Trinh and Parenteau, 1991).

In another research study, Tran and Dalholm (2005) studied the effect of the privatisation of state-owned housing in Hanoi city. They concluded that privatisation did help to strengthen the existing inequity between different social groups, in the sense that the privatisation policy supports senior government officials, many of whom were well

situated both financially and socially, but ignored poor and low-income households. Privatisation also contributed to enhancing the inequality between better-off housing areas and poorer ones. Mixed ownership, and the lack of regulations about the duties and rights of owners and tenants after privatisation, and also led to serious degradation of common areas in all residential blocks (Tran and Dalholm, 2005).

Phe (2002) studied the investment by people on improving their property. He argued that the dynamics of residential markets in Central Hanoi is a result of actions by groups trying to improve their properties following different investment strategies. According to him there are three main types in the taxonomy of home improvers: the improver-consumerists, the improver-turned-dealers and the aspiring improvers. In another research, Phe and Wakely (2000) found that housing status in Hanoi is influenced as heavily by the city' s history as by the new opportunities of a market oriented economy. Thus, in a double-log regression on house price, the traditional perception of high incomes being earned from trading activities always gives a strong boost to the price of houses with direct and easy access to the street.

Waibel (2007) suggested a model of '*low rise-high density*' for adequate urban typologies and spatial strategies in Vietnam. He argued that this comprehensive approach, based on proven strategies for sustainable urban development, is adapted to local culture, minimizes financial expenditure, considers socioeconomic needs and provides environmental feasibility. He emphasized the role of local residents and bottom-up initiatives in making a spatial strategy for urban re-integration. Finally, he suggested that spatial strategies should be specifically developed concerning the redevelopment of residential areas in the inner city and housing in the areas of urban expansion as well as in the surrounding provinces.

Yip and Anh (2008) argued that state capacity in Vietnam is in fact rather weak, despite the permeation of state machinery into every level of society and the image of a strong socialist party state. They said 'although the country is striving hard to strengthen its capacity in various areas, such reforms are either yet to take root or being dragged back by legacy of the old regime. The unique state-society relationship in Vietnam also shaped the trajectories of adaptation of state capacity in the course of rapidly changing economic and social environment'.

DiGregorio (2011) studied the behaviour and satisfaction of residents in villages in Hanoi, which were surrounded by project signboards promoting high-tech zones, new

urban areas and resorts. By using a forced choice survey and face-to-face interviews, he found that, while nearly all respondents agreed with the goals of development, skepticism over its claims were much higher among those closest to the urban edge. In response, they have retreated to sporadic protests over compensation and the restoration of ritual spaces as a means of maintaining community identity. Finally, he concluded that integrating villages into project development planning would result in a decrease in protests and avoid the transformation of these centuries old villages, with unique histories and traditions, into Hanoi's future urban slums (DiGregorio, 2011).

Han and Vu (2008) studied the institutional changes in Vietnam's urban development with the main focus on the issue of compensation in land acquisition. They found that the role of local governments in land acquisition had been minimised gradually. A coalition between the government and land developers was discernible in the case studies, often associated with a low compensation rate in land acquisition, which was proposed by the government in favour of the developers but at the expense of individual sitting tenants. At another level, the law enforcement behaviour of local authorities was shaped by considerations of possible rent-seeking and concerns about intervention from higher-level authorities.

Kim (2004) found that while Vietnam's reforms provided some of the weakest legal private property rights amongst the transition countries, cities like Ho Chi Minh City have booming domestic real estate markets. By employing a hedonic price model to analyse the pattern of prices at which sellers offer properties in Ho Chi Minh City, she examined how this market values property rights. She found that multiple forms of property rights, enforced by highly decentralized state institutions, are operational in this market. She argued that legal title itself is not the most valuable form of property right and suggested that the value of property rights emanates from where it is enforced within the particular institutional context of a market.

In another paper Kim (2011) studied the social conflict in the process of urban land development in Vietnam as those who are relocated contest the distribution of economic gains. She found that the relocated have increased their bargaining power and receive better compensation packages recently. She analysed this situation to discuss further developing our understanding of how property rights and institutions change. She argued for the efficacy of social narratives to renegotiate the terms of the social contract supporting property rights, even in a society with limited means for public participation

in governmental reform. This study illuminated that modern property rights are entwined with public finance and so property rights reforms are tied to the organisational structure of government and fiscal relations.

Labbé and Musil (2013) studied the reworking of the socialist land regime that followed from the shift of economic reform. They explained how new legislation and institutions combined market and socialist principles to lure domestic enterprises into realising the state's new urban ambitions. They then showed how this hybrid reordering of policy triggered local experiments with peri-urban land redevelopment and new forms of alliances between the state and private capital. By using the case of the Land-for-Infrastructure mechanism, which used land as in-kind payment for the building of infrastructure, they found that this experiment undermines the implementing of official planning orientations and regulations. Finally, they explored the relationship between this problematic outcome and the political-economic environment within which recent land policy changes have been implemented in Vietnam.

Phuc et al. (2014) analysed how the conversion of farmland for urban uses takes place in the medium-sized city of Hue in Central Vietnam. The analysis showed that land conversion for urban development purposes has increased social tensions and complaints from affected people. They argued that the state used its extensive powers in the decision-making process while the participation of affected people was passive and weak; and land conversion from agricultural to urban used results from profit-seeking by multiple stakeholders.

Thien Thu and Perera (2011a) studied the two-price system (see more detail in section 4.2 of chapter 4) in Vietnamese land market. Land was acquired from land-use-right certificate holders and allocated to developers of real estate projects by the State, based on a government imposed land-price framework that did not adhere to market principles. Once developed, land was transacted between developers and buyers based on the prevailing market price. This separate price system on land was intended to encourage capital from investors to flow and stimulate economic development. In reality, this policy had led to prolonged conflicts over land acquisition. The conflicts in turn had led to insufficient supply of land for developing residential projects in Ho Chi Minh City. The study found that the thriving condition is due to fierce speculation on already available land lots and partially or fully completed housing units in the market.

In another research Thien Thu and Perera (2011b) argued that, by 2001, most properties and/or land in Vietnam still did not have a legal title. Transactions of 'property without a physical entity and legal title' in the real estate market showed how property ownership can be formed in order to operate within different institutional contexts. He concluded that 'intermediate levels of property rights' were the driving forces behind the thriving housing market in Ho Chi Minh City.

By reviewing the above research, we could see a major concern of academics on land issues in Vietnam especially the land revocation and compensation processes as one hand it has promoted property developer to invest money in housing development, but also increased the conflict between stakeholders in the land revocation process. Another issue is that there is a preponderance of studies of big cities such as Hanoi and Ho Chi Minh rather than places like Can Tho. Besides that, some of studies are more focussed on redevelopment rather than new green-field development.

2.8 Housing affordability and housing finance

This section discusses one of the most important issues in housing research and policy in developing countries as well as developed countries, which is housing affordability, and thus provides a broader context for understanding the financial ability of people in the low and lower middle-income group of people who are living in urban areas to achieve housing solutions.

Housing affordability is always a big issue in urban areas especially in big cities where land is rare and usually in a high value that goes out of reach of most urban citizen in the low and middle-income groups. Housing affordability also relates strongly to levels of inequality in income/wealth, and to the tension between (low) average income levels/ability to pay and the costs of housing of minimal adequate/safe/healthy standard. So, it is important to review some literature on those issues to give a better understanding for the major focus of this research which is self-help housing as an important solution in providing affordable housing in urban areas especially in the developing countries.

In general, there is no common definition on affordable housing and housing affordability, as those concepts vary from country to country depending on their context of economic, society and political background. And there is also a big difference between social policy related to affordable housing between developed and developing countries. In general, affordable housing could refer to housing the cost of which does not consume too high a proportion of the household's income, so that they could be able to meet other

non-housing needs. Fairly widely-used norms for housing affordability would specify that the cost for housing which should not exceed 30 percent of the monthly household income so they could be able to afford other necessities such as food, cloth, transportation service and medical service.

As different countries have different social and economic backgrounds, so depending on a specific context could lead to a different understanding or definition of housing affordability or affordable housing. Despites the fact that there is no common definition or precise concept for housing affordability or affordable housing, especially between the developed and developing world, affordable housing and housing affordability have become the dominant and debated issues among both the academia and government in housing policy research and practice all over the world for the last two decades. Some have argued that the term 'housing needs' has been replaced by 'housing affordability' and has occupied the center of the debate on the provision of adequate housing for all (Quigley and Raphael, 2004, Whitehead, 1991, Whitehead, 2007). While there are no single generally accepted definitions, the theoretical concept and definition of 'affordable housing' and 'housing affordability' are characteristically linked with two fundamental elements: housing cost and household's income. However, one of the most widely quoted statements about what housing affordability entails is provided by Maclennan and Williams (1990):

> *'Affordability' is concerned with securing some given standard of housing (or different standards) at a price or rent which does not impose, in the eyes of some third party (usually government), an unreasonable burden on household incomes'*

In attempt to measure the housing affordability, Bramley (2012) stated that affordability has become a more important issue in housing policy, with key examples of its role in social housing rent and subsidy issues, housing benefits/allowances systems, and mortgage regulation, as well as in the planning of new housing supply of all kinds. He argued that affordability is still not fully accepted and enshrined in agreed standards, partly due to different views about how it should be measured and at what thresholds (Bramley, 2012).

The following sections review the affordable housing concepts in the context of both developed and developing countries as it is important to understand the differences and lessons which can be learned from different worlds.

- *The affordable housing concepts in the context of developed countries*

Yamada (1999) argued that affordability with regard to land and housing markets is one of the most debated issues within developed countries. This issue has gained much importance in the relevant policies and regulations and consequently topped the national housing policy agendas. The term "affordable housing" should reflect the common public usage, while also being compatible with appropriate policy goals, which implies housing that is affordable for households in the middle and lower-middle parts of the income scale.

According to Maclennan and Williams (1990), the term 'affordability' has been in widespread use in US housing policy since 1960s. The generally accepted definition of affordability for a household in the United States is to pay no more than 30 percent of its annual income on housing. Families who pay more than 30 percent of their income for housing are considered cost burdened and may have difficulty affording necessities such as food, clothing, traveling and medical care. However, in the UK since the late 1980s, housing affordability has been conceptualized more broadly to include housing supply, housing needs and housing costs. Monk and Whitehead (1996) argued that housing affordability can be regarded as an interrelationship between rents, benefits and incomes, where each of these elements is subject to change. The Housing Green Paper in the UK did not provide a set definition of housing affordability; instead, it provided a framework for developing locally determined targets (Gov-UK, 2007). Current policy in the UK has directed the local planning authorities to 'define what the authority considers being affordable in the local plan area in terms of the relationship between local income levels and house prices or rents for different types of households' (Gabriel et al., 2005). In Canada, policy makers have advocated a combined approach in which the percentage of income is recognized as a viable indicator of housing affordability; however, the Canada Mortgage and Housing Corporation has also sought to distinguish between those who choose to spend more than 30 percent of their income on housing and those households who have no alternative. This is achieved by applying a 'norm rent income' value which is used as the low-income cut-off. A household is said to be in housing need due to affordability problems if it spends more than 30 per cent of its income on housing and its income falls below the norm rent income required to rent an average dwelling which is suitable (in terms of number of bedrooms) and adequate for that household's purpose (Gabriel et al., 2005).

Table 6: Recent policy strategies to increase housing affordability

Country	Housing affordability initiatives	Date	Definition of affordability
United States	National Affordable Housing Act Since 1990, states and local jurisdictions that receive federal housing block grants are required to develop Comprehensive Housing Affordability Strategies (CHAS)	1990	Less than 30% of gross income; costs include rent and utilities
United Kingdom	Green Paper Circular 6/98: Planning and Affordable Housing Planning Policy Guidance Note 3: Housing	2000 1998 1992	Locally determined measures
Canada	Affordable Housing Framework	2001	Less than 30% of gross income; costs based on norm rent income
New Zealand	Building the Future: Towards a New Zealand Housing Strategy	2004	Recognition of housing and non-housing costs

Source: (Gabriel et al., 2005)

- *Affordable housing in the context of developing countries*

The housing markets in cities of developing countries are characterized by the absence of the concept of affordable housing and by the domination of the informal housing supply because of the deficiencies of affordable housing in the formal housing market. High house-price-to-income ratio is a very common characteristic of housing markets in developing countries (WB, 2011). In order to solve the urban housing problem of the low-income group, governments in the developing countries initiated public housing and slum clearance programs in 1960s, but these attempts mostly failed, as huge financial involvement was required. As already mentioned, during the 1970s, many developing countries launched sites-and-service schemes and self-help housing projects; however, these programs also failed to make a substantial impact due to the problems of cost recovery and affordability. To minimize those problems, slum upgrading programs were initiated in the early 1980s (Seik, 1992). Nevertheless, the affordability problems of the middle-income groups were not addressed and the concept of affordable housing and housing affordability was almost non-existent.

Among the Asian developing countries, China has a comprehensive policy in providing affordable housing to its middle- and lower-middle-income groups. With the largest population in the world, the nation has a tremendous task to perform in providing decent housing for its entire people at an affordable price, particularly for people in the cities. Until 1978 (before the launch of housing reform), housing was treated as a kind of occupational benefit or a part of people's wages (Chiu, 2001). However, since the initiation of its 'Open Door Policy' in 1978, China has demonstrated a notable policy shift, from a planned economy to what one may call a 'socialist market' regime. Housing reform was also started soon after the State Council issued a policy paper entitled 'Implementation Plan for Nationwide Urban Housing Reform by Stages and by Groups'. This marked an important step forward in the history of China's affordable housing. Prior to urban housing reform, most urban Chinese people lived in rented accommodation provided by state agents - namely local governments, state-owned enterprises and work units. Tenants paid only a nominal rent to the housing providers. This, however, proved neither financially viable, nor sustainable and therefore, housing reform was put in place by the central government. New initiatives were put in place aimed at providing affordable housing for all on the one hand, and encouraging home purchase and home ownership on the other. In recent years China has experienced a high rate of homeownership and in urban China the homeownership rate is 72 percent (Li and Huang, 2006).

China's current affordable housing supply system is mainly built upon the successful implementation of the policy in the 1990s. At the end of 1991 housing reform entered a new phase and the state council issued a document titled the Comprehensive Reform of the Urban Housing System. In 1994, the government established two distinct systems of housing provision. The first one was the provision of Economic and Suitable Housing for low and middle-income households. The price of such housing system was to be fixed by local government with taking into account local income levels and development costs. The second one was the commodity housing which targeted mainly the upper-income groups (Li and Huang, 2006).

Malaysia is another Asian country where government widely intervenes in the housing market with the intention of providing affordable housing for of all sections of the population. Various housing development programs were initiated for increasing the construction of affordable housing by both the public and private sectors. During the plan period from 2001-2005, in the 'low-medium-cost' housing category, a total of 83,910

units (63.9 per cent of the plan targets) were completed in which the private sector constructed 72.8 per cent. This demonstrated a positive response by the private sector to the increasing demand for houses in this category, and helped to reduce the demand for affordable housing (Majale et al., 2011). However, it is argued that the Malaysian housing system has not always developed smoothly and its development has rarely been in line with the intentions stated in the five-year plans. The government is criticized for inefficient land-use policies, building codes and planning policies, production and construction policies and management and distribution policies (Agus, 2002). Considering all the criticisms the Malaysia government formulated the National Housing Policy in 2011, which specifically emphasized the provision of affordable housing for the middle- and low-income groups. This is certainly a positive sign of the government's intention and commitment in solving the housing affordability problems of the middle- and low-income groups.

Over the past 25 years, the government in the Philippines has also attempted to boost homeownership for the low and middle-income groups through a range of initiatives including direct production of housing, provision of public funds for development, or end-user financing, to entice the private sector to produce 'socialized' housing under the decentralized and participative approach, which led to the rise of joint venture projects between governments (at all levels) and the private sector for low-income housing (Majale et al., 2011).

Among the seven south Asian countries, only the Sri Lankan and the Indian governments have outlined some specific policy measures in its housing and land policy documents regarding the provision of affordable housing. The Ministry of Housing and Construction in Sri Lanka has set the vision for ensuring affordable housing for all. However, no clear strategy was delineated to fulfill the visions. The National Housing Development Authority took a few initiatives such as the 'One Hundred Thousand Housing Program' and the 'One Million Housing Program' to increase the housing stock and home ownership. In Bangladesh, a few site and service schemes for the low-income people were initiated. No policy documents regarding affordable housing or housing affordability exists in the countries and a significant percentage of urban housing is supplied through the informal sector (Majale et al., 2011).

- *Housing finance in developed countries*

Another issue that has a strong relationship with housing affordability is housing finance. This section first discusses of housing finance issues in developed countries, with particular reference to the US and the UK. The housing finance system in the US could be understood only in its historical context. The institutional structure of the US housing finance system nowadays has its origins in two major federal initiatives of the Great Depression. The first major initiative established the Federal Home Loan Bank System. And after that, the second created the Federal Housing Administration. Together, these two organizations revolutionized the housing finance system in the US, but their purposes were quite different and some of their consequences not quite anticipated (Maclennan and Williams, 1990). The mortgage finance system that evolved in the US from the 1930s through to the 1960s served the country adequately. Mortgage interest rates were reasonable, even low, compare to other financial instruments. Until the late 1960s, savings and loan associations did enjoy the partial protection from mass withdrawals during the periods of rising interest rates, because they were permitted by the law to offered slightly higher interest rates on their deposit accounts than commercial banks. By 1980, two reforms had been legislated. The first was the creation of adjustable rate mortgages which had been common in other countries for many years. The second provided for the gradual deregulation of the savings and loan associations, who would no longer have to confine their investments primarily to residential mortgage so that they could provide the same financial services as commercial banks (Maclennan and Williams, 1990).

In parallel with the housing finance system is the low-income housing subsidies. Like the council housing in the UK, the first federal housing program for low-income families in the US, which was called public housing, was the product of an economic crisis, the Great Depression. In this housing program, the federal government would pay for the cost of construction, while rents were expected to cover current expenses. However, after more than a haft century it still houses less than 2 percent of the country population (Maclennan and Williams, 1990).

Since 1990s, the problem of lending to people who had poor credit rating and were unable to repay the mortgage in the long term in the US, which was known as ‘sub-prime’ lending, had increased significantly (Davis, 2013). This problem of the US housing finance system had led to the collapse of some US banks and mortgage lenders and affected many other financial organizations all over the world, thus led to the global financial crisis in 2008 (Jones and W. Richardson, 2014).

While in the UK, building societies were the most important institutions involved in the housing finance system. They are specialist institutions with two principal functions-to accept deposits from members of the public and provide loans for house purchase. They were by far the largest recipients of retail funds and the largest lenders for individual mortgage (Maclennan and Williams, 1990). One important distinction between the UK mortgage market and that in many other countries is that the vast majority of loans relate to the transfer of existing housing units. Approximately 10 percent of building society mortgages are presently given on new dwellings and only about haft of all society mortgages go to the first-time buyers (Maclennan and Williams, 1990). However, mortgage market was deregulated in 1980s and many Building Societies converted to public banks. The housing finance system was efficient and offered increasingly cheap mortgage finance on generous terms (e.g. high Loan to value ratios) over long terms at low cost. However, the system ran out of control in 2000s, although not quite as badly as USA, leading to financial crisis, leading to restriction of lending, e.g. 80% loan-to-value meaning people need big deposit.

- *Housing finance in developing countries*

In developing countries, such kinds of formal institution models of developed countries do not work for low-income households as they require formal guarantees in the form of collateral. Most of the households cannot produce valid title deeds to the land on which they intend to build. So, there is limited reach of conventional mortgage finance in developing countries because of issues about property title and the low-incomes of most people. Due to the lack of a completed housing finance system, in developing countries individual housing builders have relied much on savings and informal finance supports. Although the World Bank enabling strategy assumed this mortgage lending would take off, but it has been very uneven. It has only taken place massively in China but not so much in some other countries including Vietnam.

2.9 Conclusion

This chapter has reviewed some related topics that provided a clear theoretical background for understanding the phenomenon of self-help housing in urban Vietnam. Although the concept of self-help housing is used by numerous social scientists, urban planners, policy makers and advocacy groups, no agreed definition or theoretical framework exists. As a result, different approaches to self-help housing studies have been developed based on data collection, creation of indicators and measurement approaches.

The concept of self-help housing, which was common concept in least developed countries from the 1960s, originated from the spontaneous house building as a traditional activity involving maximum family contribution and without external help. However, up to now, under the massive support from the international organizations such as the World Bank or United Nations, self-help housing has become a major approach in solving the housing need of poor people in developing countries across the globe. From the stimulus provided by these international organizations, the concept of self-help housing and urban upgrading has gained great popularity in developing countries, and the practical activities has produced a significant success in improving living condition of hundreds of million people in the world.

In the context of Vietnam, self-help housing has a much wider meaning and coverage than just the informal/unplanned/spontaneous self-help housing. It also covers the formal self-help housing (or planned/self-build housing). This wide coverage of self-help housing in Vietnam urban context will be discussed further in chapter 6 of this thesis.

Besides that, this chapter also reviewed some issues relating to housing development such as urban planning, urban form, sustainability, housing affordability and housing finance, in both the context of developed and developing countries. This review has provided a broader context in understanding and analyzing the housing development situation especially the self-help housing in Vietnam, which will be discussed in detail in the following chapters.

CHAPTER 3: METHODOLOGY OF THE RESEARCH

3.1 Introduction

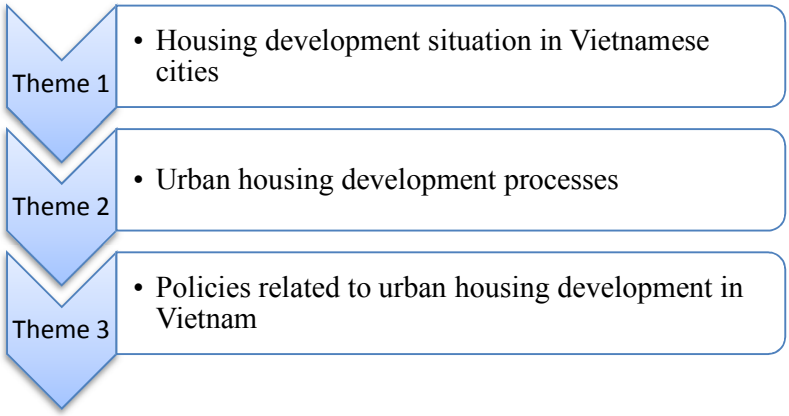
As mentioned earlier in Chapter 1, the purpose of this study is to understand the process of housing development in Vietnamese cities and the roles of actors involve in the process. More specifically, the main aim of this research is to explore the role of self-help housing in housing development in Vietnamese cities. The underlying motivation is to provide recommendations for the Vietnamese authorities to improve the planning system and policies for enhancing the effectiveness in urban governance, while continuing to support the self-help housing pathway and moving toward a more sustainable urban housing development. This chapter explains the research plan and methods that are employed in answering the research questions which were set out in Chapter 1.

This chapter consists of five sections. Following this introduction section, the second section discusses the analytical framework which is based on the theoretical concepts and background research literature that were discussed in Chapter 2 to address the research questions. The third section discusses the research strategy and approach. The fourth section describes in detail the methods used in this research including the case study method. The last section gives some conclusions on this methodology chapter including some limitations.

3.2 Analytical framework

As mentioned in the first section, this section discusses on the analytical framework that covers the most important issues related in this research. Based on the literature review which was presented in Chapter 2, this research explores the housing development process in Vietnam under three themes: housing development situation in Vietnamese cities, urban housing development processes; and policies related to urban housing development in Vietnam. These themes are summarised in Figure 6.

Figure 6: Analytical framework of the research



In the first theme, a review on housing development in Vietnam since the Unification in 1975 will be conducted. This will be set in a wider context of the urban development situation against a background of global concerns including the problems of climate change and sea level rise. These issues will be explored to highlight the particular risk in urban and housing development in Vietnamese cities, especially in the VMDR.

In the second theme, the most important part of this research is developed which concerns the urban housing development processes in Vietnamese cities. An in-depth analysis of the urban housing development processes is carried out, which covers a wide range of urban housing from the informal self-build housing to the formal pre-build housing. In this analysis, the nature of the housing development processes will be discussed, including the household characteristics, house and land characteristics, and detail of house building process from the early stage of designing to the final stage of completing the house. Besides that, the satisfaction level of the housing owners will be explored, thus shedding more light into the causes of the self-help housing phenomenon in Vietnam.

In the last theme, which is concerned with the 'Policies related to urban housing development in Vietnam', a review is undertaken of the legislation system including some main laws that relate to urban and housing development in Vietnam. This includes laws such as the law of land, law of housing, law of planning, and law of construction, all of which will be briefly discussed. A deeper investigation of the planning system and housing policy will be undertaken in order to understand their influence on the urban housing development in Vietnam. This level of analysis aims to answer the third research question: "To what extent does the legal and administrative framework, land ownership and the practical process of land use change affect housing development in Vietnam?".

The conceptualization of self-help housing by the British architect John Turner has been an invaluable aid to the present writer as he has sought to discern how the spontaneous phenomenon of urban housing development has happened in the past few decades in the context of developing countries.

3.3 Research strategy and approach

There are two basic orientations of research strategy in the social sciences, which are the qualitative and quantitative approaches. Qualitative research focuses on the subjective understanding of a social or human problem from particular, often multiple perspectives. Quantitative research is typically an inquiry into an identified problem, based on testing a theory, measured with numbers and analyzed using statistical techniques. It is argued that choosing any specific research approach depends on the nature of the particular social phenomenon to be explored (Bryman, 2012). However, combining these two approaches can useful to capture the best of both of them (Bryman, 2003, Creswell, 2013). The aim of the study is to explore the process of self-help housing development and its role in housing development in Vietnamese cities and it requires both qualitative and quantitative approaches for data collection and analysis.

Thus, this research employed a mix-method approach set within what is broadly a case study approach (Yin, 2013, Bryman, 2003, Bryman, 2012). As mentioned above, this research involved the exploration and evaluation of self-help housing development in a Vietnamese city in the context of CC and SLR. In order to achieve a deeper understanding of self-help housing, the case study method was employed to provide a clear focus on a specific context, Can Tho, a city in developing country. For better exploration on the complicated housing development pattern in Can Tho city, multiple cases of varying housing development styles and processes were selected. In selecting the residential sites for this study, first the author used remote sensing (Google Earth) with the function of viewing historical images of a specific area to identify within which areas the new residential developments were occurring within the city from 2003. Satellite images of the city were traced back to 2003, 2006, 2009 to identify the level of development and the amount of housing that were built up within those time periods. After that, a preliminary field trip was conducted in January 2014 to different residential areas around the Can Tho city and with some considerations on the dominant housing type, infrastructure and the surrounding environment of the sites. Finally, five neighborhoods were selected in five different areas of the city. More details of the site selection methods are explained further in the next sections on research method. After

that a systematic household survey including questionnaire and interview guide, as well as site observation survey were designed and implemented in these case study areas. These research activities were conducted in a later longer fieldwork visit to the Can Tho city of Vietnam.

The following sections described how a mix-method approach is used to answer each research question.

The first research question is: "Why and how does self-help housing happen commonly in Vietnamese cities, and what is the role of self-help housing in urban housing development in Vietnam?". To answer this question, both qualitative and quantitative methods of analysis are used and SPSS software is used for simple quantitative analysis of the data collected through a questionnaire survey with householders, while semi-structured interviews with stakeholders provide a qualitative picture. At the same time, the population and housing censuses secondary contextual data while government policy documents and reports provide a background understanding of policy trends and intentions.

The second research question is: "What are the main approaches, forms and identities of new urban housing developments in the VMDR, and what economic, social or environmental problems arise from this?". To answer this question, again both qualitative and quantitative methods of analysis are used and the SPSS software is used for simple quantitative analysis of the survey data collected. In addition, a Map-based analysis is conducted using a geographical information system (GIS). Thus, the data sources include semi-structured interviews with stakeholders, population and housing censuses, local government plans, maps, registers and site survey and observation.

The third research question is: "To what extent does the legal and administrative framework, land ownership and the practical process of land use change affect housing development in Vietnamese cities?". The qualitative approach of analysis is used to answer this research question, by conducting semi-structured interviews with stakeholders and reviewing the government policy documents and reports.

The last research question is: "What are the major risks in urban housing development in the VMDR?". Again, the qualitative approach of analysis is used, plus a map-based analysis in understanding the geographical characteristic of the VMDR in relation with climate change and sea level rise issues. Data collected through the

questionnaire survey of householder is also relevant, alongside semi-structured interviews with stakeholders, government policy documents and reports, and local government maps, plans and registers.

3.4 Research methods

- *Case study method*

Case study approaches are undertaken for in-depth exploration of a program, process, event or activity within a specific context where the researchers collect detailed information using a variety of data collection procedures for better understanding of the contemporary phenomenon within its real life context (Yin, 2013, Creswell, 2013). Since this study involved the housing development process at the neighborhood level in the specific context of Can Tho, a city in a developing country, the case study method was employed to explore the self-development of urban neighborhoods. For better understanding of self-help housing development, multiple cases of varying characteristics were selected. In selecting the appropriate cases, the following considerations were taken into account. First, whether the neighborhood was located in an inner city or suburban area. Second, since the Can Tho city has a substantial amount of unplanned area in its jurisdiction, the development pattern composition in terms of planned and unplanned area was given due consideration. Third, the characteristics of the built form (in terms of type of housing and density) of the neighborhood were considered. More details of the research site selection methods are explained in the following sections on research methods.

- *Fieldtrip description*

In choosing research sites for this study, two main types of relatively recently developed urban settlements are selected. The settlements models are characterized by the different development processes. The fundamental factors distinguishing the two types are the varying degree of informality or degree of control governing the development process of the settlements. While the private informal type is characterized by a high degree of flexibility, minimum regulation and gradualism, the developer-build estates are typified by planning control and a high regulated development process. These terms have been defined by Turner and his associates in the book Freedom to Build (Turner and Fichter, 1972). So, a comparative study will be conducted in order to identify the major differences in the two approaches of housing development in Vietnamese cities.

+ *Formal housing* in planned residential area (also called project-housing): the houses or house plots are developed by private developers or government organizations with the approved detail plans.
+ *Informal housing* in unplanned residential area (also called spontaneous housing or self-help housing): the houses are developed by individual owners either without any plan, or with only limited plan and regulation.

Secondary data for this research includes the Vietnam Population and Housing Censuses in 1989, 1999 and 2009. These will be used for analyzing some household and housing characteristic. Governmental documents such as and plans and policies from the local and central authorities will supply deeper background information for the research. Other visual data such as drawings, maps or satellite images have been calculated and analyzed using AutoCAD and ArcMap.

Historical satellite images and cadastral maps were used to analyze the original settlement pattern and changes in the pattern of the residential sites, and also for comparing the level of the housing growth of each site. After the household questionnaire survey, some other missing data on the house and land area were calculated using maps and from this secondary data source. In this calculating process, the satellite images were imported into AutoCAD and aligned to the precise scale. And then polygon-lines were drawn along the boundaries of the houses and land plots which could show the area of every case with missing data. The total usable floor area of the house was calculated by multiplying the build area by the total number of house's floors.

Other secondary data such as city master plans, zoning plans and detail plans and also some other planning policies, building regulations and government reports on planning and housing were acquired to understand the influence of planning tools in shaping and managing the trend of housing development in the city.

The survey was conducted within 5 residential sites within the two most densely populated districts in Can Tho city, which are Ninh Kieu and Cai Rang districts (see more details in Figure 21 and Table 8).

- *Site observation and checklist*

Although carefully chosen from satellite images, the selected sites were checked again on the ground before conducting the survey, in order to update the information on new houses and infrastructures that were built between the date of image taken and the

date of survey. Besides that, a checklist for the characteristics of the site, such as main housing type, road and other infrastructures or public services, was also conducted.

- *Structured questionnaire survey of the residents*

This research uses a structured questionnaire survey to explore the information on housing socio-demographic profile; their housing development process; and the risks that they have experienced such as flooding or land eviction. Firstly, five pilot interviews were conducted in each site in order to test the questionnaire validity. After that, the questionnaire was revised, some confused questions were clarified and some overlap questions were omitted. An example questionnaire from another research project in the UK which was called 'City Form' were used for formatting the final questionnaire to fit with the academic standard required. There were five parts in the final questionnaire (see more detail in Appendix A). In the first part, the residents were asked about the general information of the household including household size and financial ability. In the second part, the residents were asked about the characteristics of their land and house. Part three was developed to explore the detail process of self-build housing. Thus, only households that developed the house themselves answered this part of the survey. The other respondents who living in the houses that were developed by the developers or previous owners skipped this part as they did not know or knew very little on their houses' development processes. In the fourth part, the residents were asked about some risks that they have faced with their housing including inundation and land eviction. The final part was designed to assess the house appearance. In order to save time for the respondent as the questionnaire was quite long with 55 questions in total, this part was completed mostly by the research assistants with the attached images of each houses. And the same method was applied with the site observation checklist for each site of the research.

Time constraints made it impossible for the researcher to conduct the whole questionnaire survey alone. Therefore, to complete the survey on time, ten students from the universities in Can Tho city were hired to assist conducting the questionnaire survey. A meeting was held to introduce the requirements and objectives of the survey. The students were chosen by consulting the teaching staff of the concerned department based on their prior experience of undertaking questionnaire surveys for academic purposes. The students were well informed about the research objectives and the survey by the researcher. Five groups were established with two students in each. Each group was in charge of one residential site.

Time for the interviews took place from 4.00pm to 7.00pm on working days and from 9.00am to 6.00pm on weekend, since people is usually at home in this time periods. Closed doors were revisited one or two days later. In cases of non-response household (i.e. closed doors) the research team did not substitute a different address. The household samples for the questionnaire survey were randomly selected. The latest satellite image of the site was use for numbering and grouping the houses into regular interval and then picked out the random addresses within the residential areas. The survey lasted two weeks of December 2014 and one week of January 2015.

The inquiry into their perceptions, and also the residents' perspective and experience of the development process, primarily depends on the supply of information from the residents. Hence, a questionnaire survey was a core method used in the case studies. The survey was designed also to obtain the required information on the residents' socio-demographic profile; the housing characteristics, the development process, and the effect of flooding in recent years. The residents were asked to give their satisfaction with the process of developing their own houses. The satisfaction level for housing construction was measured on a 5-point Likert scale. In addition, they were asked to give their opinions about how to cope with any possible inundation and solutions to this problem that they have made in recent years.

In addition to completion of the questionnaire, wherever possible a photograph was taken of the front elevation of the house, to provide confirming evidence of structural features plus a broader appreciation of the housing style and construction quality (see more detail in Appendix B).

- *Semi-structured interviews*

Semi-structured interviews were conducted with local planning officials and some other urban planning professionals in Can Tho city. These interviews used a fairly open framework that allowed for focused, conversational, two-way communication to obtain information relevant to specific issues. Face-to-face interviews were conducted through open-ended questions to obtain the respondents' insights on specific issues of the housing development process. The semi-structured interview was an important method used in this study to get an idea about the housing development process currently present in Can Tho city. Semi-structured interviews were conducted with the planning officials of the Can Tho authorities to obtain information on the planning and development control of

Can Tho. Planning officials of the DoC were interviewed about the provision of public and community services in the neighborhoods.

Apart from the above-mentioned officials, a total of 20 residents from the five case neighborhoods were also interviewed in a similar semi-structured fashion, to obtain their insights about the housing development process, as they are the primary owners and users in the neighborhoods.

Through face-to-face interviews, better interaction with the interviewees ensured a deeper understanding of the subject matter. The interviewees were given information on the study objectives and assurance of personal confidentiality was promised. The interviews were conducted during the field trips from December 2014 to January 2015.

- *Some difficulties experienced during the survey*

Although the researcher and the research assistants have tried their best in collecting the data for this thesis, there were still some obstacles and difficulties during the questionnaire surveys and interviews, as following:

- House without address number
- House closed many days
- Household head was absent from home, other member did not know the information
- People worried of bluffing, or they were too careful
- Some respondents were not willing to answer certain questions (e.g. financial/income)
- The researcher could not photograph some high houses due to narrow streets
- Or some cases where high trees blocked the house facades
- A few owners did not allow for taking pictures

Nevertheless, most households approached did participate and the overall response rate was 68%. The below table (

Table 7) shows some details of the questionnaire survey sample and response. The response rate was quite high, since most of the questionnaires were filled up by face to face interviews with householders. However, there was a high response rate difference between site 1 (82%) and site 2 (54%) mostly because of the difference in the interview skill of the interviewers. Another reason was that site 2 had two different parts and located furthest to the CBD of the city while site 1 located nearest to the city centre so made it

difficult for the interviewers to revisit the closed-door households and replaced by other random households.

Table 7: Questionnaire survey sites and result

Site	Total households (12/2014)	Total samples (12/2014)	Total answered	Total refused	Response rate (%)
1-An Khanh SRA	959	123	101	22	82.1
2-An Binh RRLA	682	194	106	88	54.6
3-Thoi Nhut RLA	926	127	100	27	78.7
4-91B NURA	874	153	100	53	65.4
5-Phu An NURA	923	152	100	52	65.8
Total	4364	749	507	242	67.7

Source: Author survey, 2014

Table 8: Selected case study neighbourhoods

Site	Development pattern	Purpose	Estimate population (2014)	Housing type
1-An Khanh SRA	Unplanned	Spontaneous	4200	Row house
2-An Binh RRLA	Partly planned	Relocation and spontaneous	3500	Row house
3-Thoi Nhut RLA	Planned	Relocation	4000	Row house
4-91B NURA	Planned	Commercial	5000	Row house, detached house and apartment
5-Phu An NURA	Planned with pre-build house	Relocation and commercial	3000	Row house and detached house

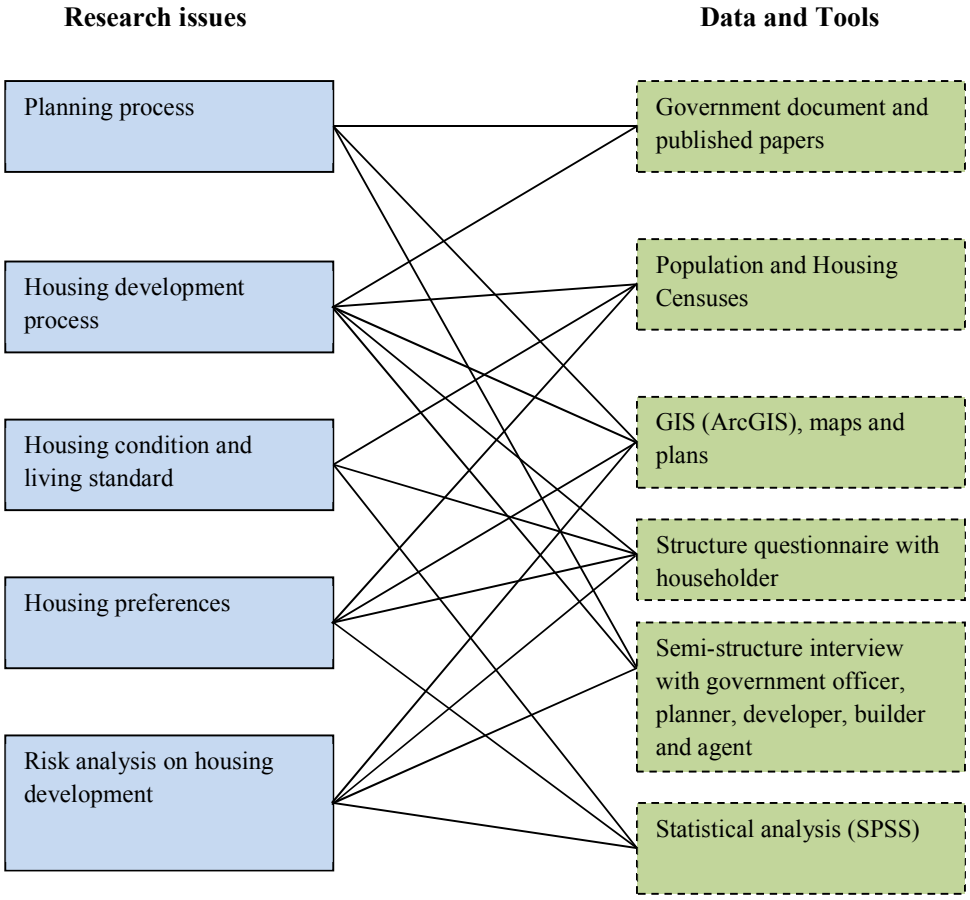
Source: Author survey, 2014

Data collected from questionnaire survey was put into SPSS software by the researcher. This process consumed much time and required a patient mind as the total number of samples and variables are quite high (507 samples and 72 variables). The researcher carefully went through questionnaires one-by-one while also double checked the location and image of the house. Besides that, data from the interviews both with householders and officials were carefully transcribed from recording and translated into English (see more detail in Appendix C).

The quantitative data was analyzed by using SPSS software with descriptive and crosstab analysis for comparing and triangulating with secondary sources such as

censuses which are also collected in SPSS format. The following figure provides the links between research objectives and the methods and tools for data collection and analysis in this research.

Figure 7: Mixed-method approach in the research



Source: Author, 2013

The main fieldtrip to Can Tho city was conducted within 10 weeks from early November 2014 to middle of January 2015 with both primary and secondary data being collected. The details of the collected data were described above and are summarised in the following tables (Table 9 and Table 10).

Table 9: Primary data collected from the fieldtrip

Type of primary data	Results	Time conducted
5 residential site observations and checklists	+ JPEG images + Filled checklists	January 2013, November to December 2014
5 pilot interviews to test the questionnaire's validity	+ Mp3 recording files	January 2013
507 samples of household questionnaire survey (72 questions in final questionnaire)	+ SPSS dataset	December 2014 to January 2015
Over 500 pictures of houses within the sites and over 50 pictures of site's surroundings	+ JPEG images	December 2014 to January 2015
20 in-depth interviews with householders	+ Mp3 recording files	December 2014 to January 2015
5 in-depth interviews with local officials	+ Mp3 recording files	January 2015, October 2015

Source: Author, 2013-2015

- *Data from secondary sources*

Data and information from secondary sources were collected to gain a better understanding on the self-help housing process and its impact on urban housing development. The first important source of secondary data for this research is from the National Housing and Population Censuses (in 1989, 1999 and 2009). The second type of secondary data is plans, maps and regulations from the Can Tho department of construction (DoC) and the Can Tho Architecture and Planning Institute (CAPI). The third type of secondary data is housing sales numbers, prices and attributes, which were derived from the online real estate advertising websites. Finally, some satellite images and maps from Google Map and United State Geological Survey were also used for analysing the urban form of new housing development projects. Table 10 gives an overview of the types and sources of the secondary data which were collected for this research.

Table 10: Secondary data collected and available

Type of secondary data	Sources
3 National Censuses on Population and Housing in 1989, 1999 and 2009	+ Vietnam National General Statistical Office (general results) + IPUMS-International (University of Minnesota, USA) (with 5%, 10% and 15% extractions of data)
2 Master Plans for Can Tho city in 2006 and 2013	+ Can Tho Institute for Planning and Architecture (CAPI) + Can Tho Department of Construction (DoC)
5 Zoning Plans for inner districts of Can Tho city	+ Can Tho Department of Construction (DoC)
Over 20 Detailed Plans for urban areas and urban development projects	+ Can Tho Department of Construction (DoC)
Cadastral maps of wards in inner districts of Can Tho city	+ Can Tho Department of Construction (DoC) + Can Tho Department of Natural Resource and Environment (DoNRE)
Advertisements for selling houses and lands on a local website from 2013 to 2015	+ Local advertising website: *canthoinfo.com.vn* + Local e-newspaper: *baocantho.com.vn*
Satellite images	+ Google Maps and Google Earth + United State Geological Survey (USGS)

Source: Author, 2013-2014

There are some weaknesses and limitations which should be acknowledged, both in the methods of data collection and the quality of the data collected. First, using only one form of survey questionnaire for all five research sites including both the formal and informal housing, self-build and pre-build sometime make it irrelevant for the respondent to answer all of the question. However, the researcher has designed and provided a clear sign and instruction for the respondent to skip the part that is not relevant to their housing type. There is still some possibility that it might cause some invalid or missing value when putting the data into the statistical database. Second, exploring the informality issue, which may mean some 'illegal' things to some people, is never an easy task, as people would be careful about what they 'could' say without getting in trouble with the law. Thus, the number of in-depth interviews with both the informal housing owners and local officials are quite limited. Although all of them have had explained to them carefully the

purpose of the interviews, they were in some cases still uncomfortable in answering the questions related to the informal issues. Third, direct access to the official censuses is impossible as it requires permission from the central office in Hanoi. Thus, the researcher has to use data from the IPUMS-International instead. However, the extraction of this data is limited with 5%, 10% and 15% of the full data for the 1989, 1999 and 2009 censuses respectively.

Among the five research sites, the researcher himself had been directly involved in making part of the plan for the site number 3, which is the Thoi Nhut relocation area, when he worked as an urban planner at the Can Tho institute for architecture and planning in 2010. Although with some professional bias, this residential project for relocating people who were affected in the other public development projects has been a successful project -after just four years, in 2014, most of the infrastructure has been built and most of the housing plots were filled up with permanent houses.

3.5 Conclusion

Based on the literature review and empirical background in the previous chapters, this chapter has established the analytical framework to address the research questions. To address the research questions, the mixed research strategy, combining both a qualitative and quantitative approach and a case study method, was employed. The methods for selection of case studies and data collection were presented and elaborated. The data collection was conducted through desktop research, field observation, semi-structured interviews and a structured questionnaire survey. Data were analyzed using simple descriptive statistical analysis.

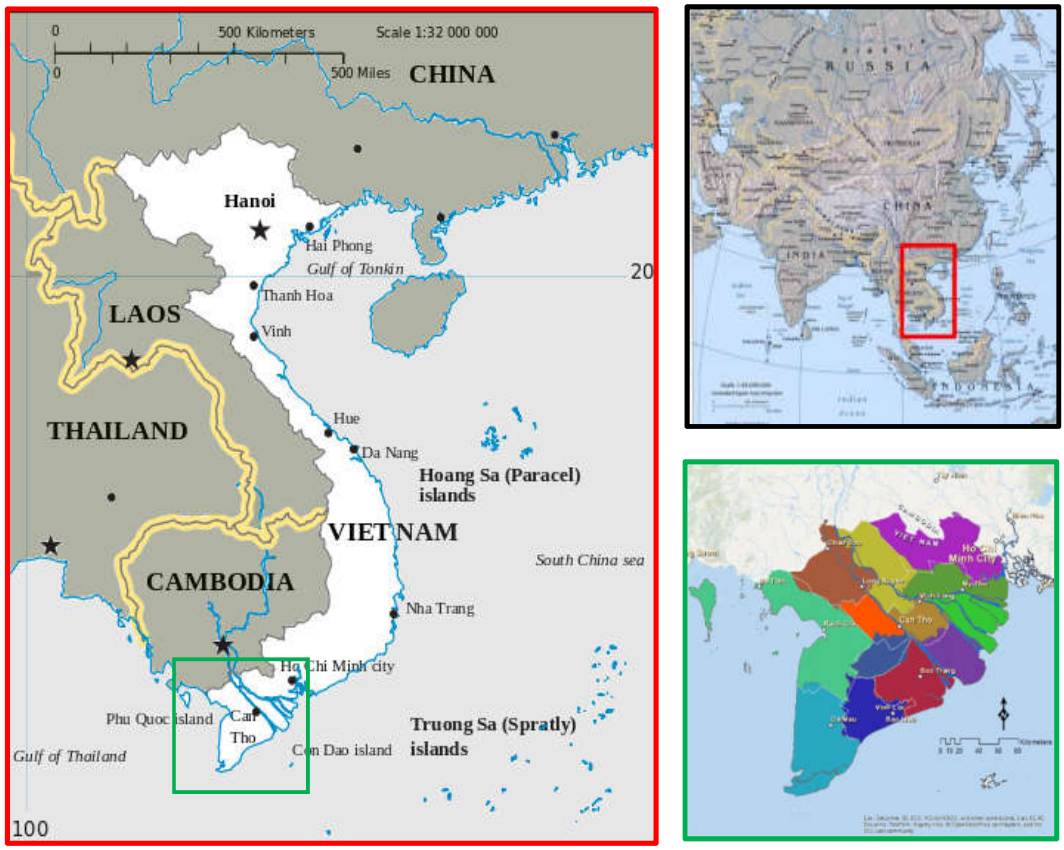
Although some difficulties were experienced during the fieldtrip, the research approach was quite successful as planned. Both the primary and secondary data collected provide a solid and useful research resource. However, due to time and resource constraints for an individual PhD researcher, this case study approach just focuses on only one city and five residential areas within it. So, to some extent it does not give the whole picture of housing development in other cities or regions in Vietnam.

CHAPTER 4: BACKGROUND OF THE CASE STUDY

4.1 Introduction

This chapter discusses the social-economic, urban governance and urban development background in Vietnam and Can Tho city in the VMDR. This provides a detail background for understanding the context of urban and housing development in Vietnam in recent years.

Figure 8: Location of Vietnam and the Mekong Delta Region



Source: Internet and ArcGIS generated by author, 2014

- *Vietnamese geography and administration*

The Socialist Republic of Vietnam is located in the centre of South-East Asia. It lies between the People's Republic of China in the North and the Gulf of Thailand in the South. Vietnam is bordered by the Pacific Ocean and the East Sea as well as the People's Democratic Republic of Laos and the Kingdom of Cambodia in the West.

Viet Nam is approximately 331,212km2 in area, with 3,260km of seashore (GSO-VN, 2010). It is located between the latitudes of 8010’ and 23024’ N and the longitudes

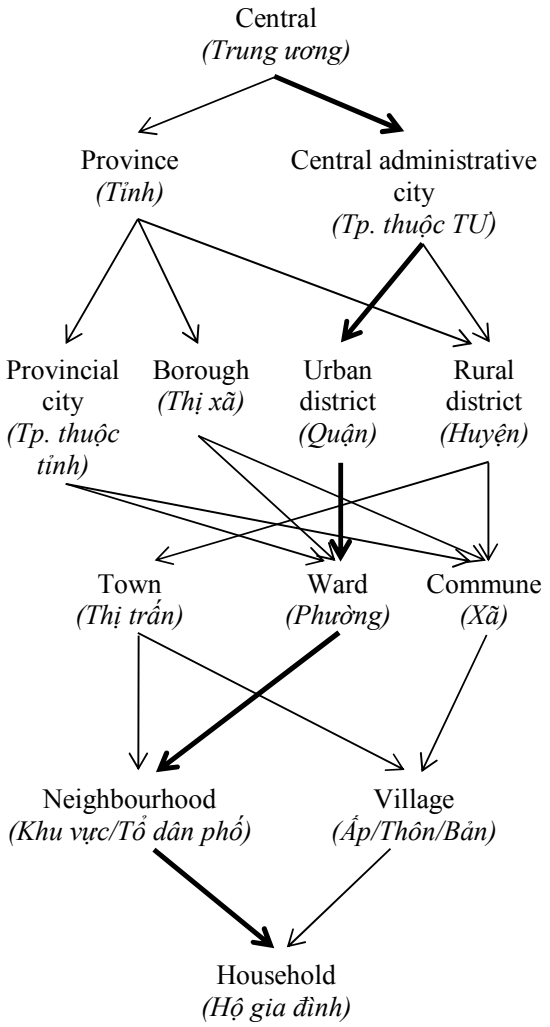
of 102009’ and 109030’ E. The distance between the northern end and the southern end is approximately 1,650km. The widest east-west sections are recorded at approximately 600km in the north and 400km in the south; the narrowest section of 50km is located in the Quang Binh province, in the middle of the country.

Three-quarters of the nation can be classified as mountainous with mountains mainly in the north and central Viet Nam. The topography mainly consists of foothills and densely forested mountains, with flat land covering less than 20% of the country. Mountains account for 40% of the area, and smaller hills account for 40%. Tropical forests cover 42% of the country. The northern part of the country consists mostly of highlands and the Red River Delta. Viet Nam’s highest mountain, at 3,143m, is located in the north in the Lao Cai province where terraced rice fields are common. The south is divided into coastal lowlands, Annamite Chain peaks, extensive forests, and poor soil. Comprising five relatively flat plateaus of basalt soil, the highlands account for 16% of the country’s arable land and 22% of its total forested land.

Viet Nam has eight typical agro-ecological zones, spreading from the North to the South, they are the North East, North West, Red River Delta, North Central Coast, South Central Coast, Central Highlands, South East, and the Mekong Delta. The weather, land conditions, number of administrative units, population, natural and agricultural land areas, and method of cultivation vary between these zones.

In Vietnam, there are five central administrative cities, 63 provincial cities, 47 provincial boroughs and 613 towns. Governmental structure in Vietnam is shown in Table 11. In Vietnam, there are three main political groups including the government, the assembly and the communist party. Under the president of Vietnam, there are five levels of administrations from the central level to the neighbourhood level (see more detail in Table 11).

Table 11: Governmental structure in Vietnam

Vietnam President (Chủ tịch nước)				
Level/ Branch	**Government** ***(Chính quyền)***	**Assembly** ***(Quốc hội)***	**Party** ***(Đảng)***	
1	Prime minister *(Thủ tướng)*	President of NA *(Chủ tịch quốc hội)*	General secretary *(Tổng bí thư)*	
2	President of people's committee *(Chủ tịch UBND)*	President of people's council *(Chủ tịch HĐND)*	Secretary *(Bí thư)*	
3	President of people's committee *(Chủ tịch UBND)*	President of people's council *(Chủ tịch HĐND)*	Secretary *(Bí thư)*	
4	President of people's committee *(Chủ tịch UBND)*	President of people's council *(Chủ tịch HĐND)*	Secretary *(Bí thư)*	
5	Representative *(Trưởng KV, ấp, thôn, bản/Tổ trưởng dân phố)*	-	Represent ative *(Tổ trưởng)*	
6	Householder *(Chủ hộ)*	-	-	

Note: Bold arrows show the government structure of the case studies in Can Tho city

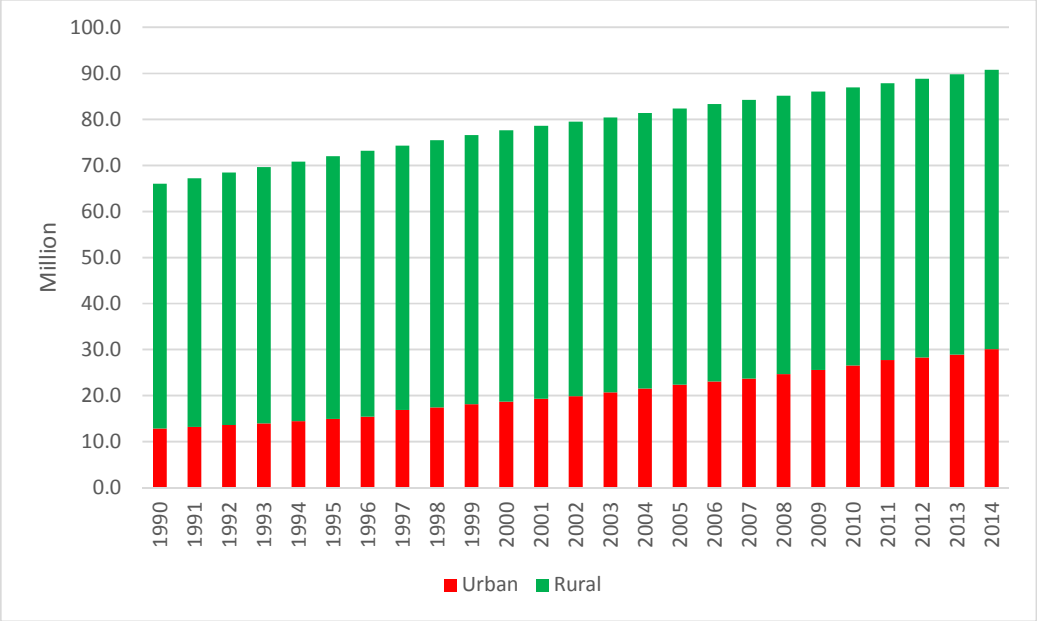
Source: Author, 2014

- *Demography and health*

The population of Vietnam is about 90 million (2014) with the density of 275 person/sq. km. In 2007, only 27.4% of the population live in urban areas and 72.6% of population live in rural areas. Vietnam has a young population with 57% of the population is below the age of 30. The age structure of the Vietnamese population in 2014 is as following:

- 0-14 years: 23.5%
- 15-64 years: 69.4%
- 65 years and over: 7.1%

Figure 9: Urban and rural population 1990 – 2014



Source: (GSO-VN, 2014)

In 2014, the urban population in Vietnam has reached 30 million people. In that, 49 percent of the urban population (14.7 million) is living in the two special cities (Ho Chi Minh and Ha Noi) and the other 15 class 1 cities. The average urbanization rate in Vietnam is around 34 percent with a growth rate of 1.0 percent annually. The south-eastern region has the highest urbanization rate with 64.1 percent, while the northern highland has the lowest rate with just 21.7 percent of the population (GSO-VN, 2010).

4.2 Urbanization, planning and housing structures in Vietnam

- *Urbanization in Vietnam in recent years*

After over 20 years of '*Đổi mới'* (Renovation), Vietnam has undergone a dramatic period of urbanization. According to information collected from 63 provinces and cities by the department of urban development (MoC 2010), the national urban system has been experiencing changes in both quality and quantity. In 1990, there were only about 500 urban areas nationwide, by the year 2000 this figure had increased to 649 and by 2003 it had reached 656. The current urban system consists of 753 urban areas, including the 2 special urban areas of Hanoi and Ho Chi Minh City, 9 urban areas of grade I, 12 urban areas of grade II, 45 of grade III, 41 of grade IV and 643 of grade V (accounting for 86%). An initial chain of national and regional urban centres has taken form. National urban centres include Hanoi, Ho Chi Minh City, Hai Phong, Da Nang, Hue, and Can Tho. Regional urban centres include cities like: Bien Hoa, Vung Tau, Buon Ma Thuot, Nha Trang, Nam Dinh, Thai Nguyen, etc. Provincial urban centres include cities and towns functioning as the centre of administration, politics, economics, culture, tourism, services, and transportation networks; district urban centres; urban centres of rural residential areas, new urban developments.

Vietnamese cities have some similar demography characteristics like other cities in the world when comparing with the rural sectors such as: smaller household size, marriage is less common and the age of the first marriage is increasing, fertility level is decreasing especially in the young group (Tran, 2009, Tran et al., 2012).

Another characteristic of the Vietnamese cities is that the urbanization process is not only driven by the industrialization and modernization processes, and other traditional sources of population increase such as natural increase, but also by including the added population and land from the expanding of the cities' administrative boundaries. In this process, most of the adjacent rural areas and their population became part of the cities, without necessarily any significant change in the infrastructure condition. The main reason for this is the demand for expanding the cities' space for development. So, this process has transformed the rural areas in the urban outskirts into inner-urban areas by simply changing their name and status (from *commune* to *ward*). This factor has more impact on the largest cities and cities which have been upgraded in level in recent years, such as Ha Noi, Ho Chi Minh and Can Tho city.

The process of social-economic change from rural hinterland into urban district is diverse and complex and includes: employment and job structure change from agricultural sector into non-agricultural sector; social life changes, mental culture and life style change; land use purpose changes; infrastructure changes, administrative system change.

Besides that, the current social welfare system in Vietnam still does not cover all of the social groups, especially in many big cities. Many people still do not qualify for the social welfare system and other social services as it depends on whether they have formal registration (hộ khẩu) or not. Most of them rely mainly on the support from family members, relatives or neighbors. So, there is a large group of immigrants from rural to urban area or from province to province, including temporary and permanent residents, who are still not under the cover of the social welfare system. At the same time, the urban informal economic sector still contributes a significant proportion in the urban economy, urban workforce and household income.

- *Planning system in Vietnam*

This section briefly discusses the planning system in Vietnam in the past few decades. In general, there are four types of plan in Vietnam's legal system including: general planning for social-economic development; development planning for sector, field, or product; construction planning (including urban planning); and land use, mineral, resource, and environmental planning. These four types of plan are constrained by a large number of laws, orders and decrees (see detail in Table 12).

Table 12: Planning sectors and legislation in Vietnam

Sector of planning	Law/Order	Decree
General planning for social-economic development	0	2
Development planning for sector, field, product	61	58
Construction planning (including urban planning)	3	2
Land use, mineral, resource, environment planning	7	11
Total	**71**	**73**

Source: (Vu, 2015)

Table 13: Approved plans in Vietnam

Type of plan	VN	Region	City/Province	District	Ward/Commune
General planning for social-economic development	0	21	63	708	0
Development planning for sector, field, main product	268	22	3081	0	0
Urban master plan	1	0	5	160	2160
Construction plan	0	33	58	772	9001
Land use plan	1	0	63	708	2160
Total	**270**	**76**	**3270**	**2348**	**13321**

Source: (Vu, 2015)

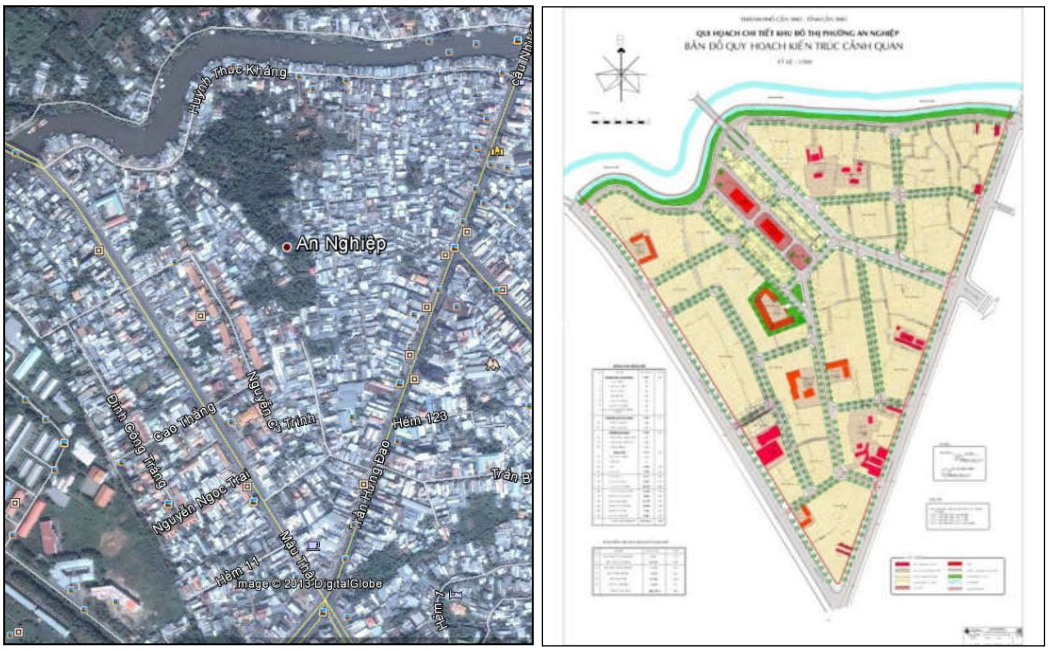
Despite the total number of approved plans being quite large (see Table 13), the planning system in Vietnam is still in transition and at an early stage of development. Vu (2015) argued that the method of making plans in Vietnam was conventionally independent and closed within each field. He showed the weakness of the Vietnamese planning system was the lack of collaboration between departments (i.e. investment, environment, and construction department) to establish an integrated plan for multiple sectors, and there was also a lack of application of advanced technology and tools in the planning process, such as geographical information systems (GIS). For example, land use planning was not integrated with spatial aspect of other sector plans, so it was merely a calculation of total numerical land area for each purpose such as agricultural land, wood land or urban area. He pointed out three main challenges for the Vietnamese planning system, as follows: 1) there were so many plans that had been made with low quality and lack of feasibility; without connection to the real demand and resource for implementation; not consistent with the market economy and being an obstacle for the development; 2) plans were not linked together or even clash, which reduces the efficiency of planning; 3) planning was still not playing the major role of the government in driving the social-economic development.

In urban planning and urban development, with over fifteen thousand plans approved across the country (see Table 12 and Table 13), including master plans, construction plans and land use plans, with the practical urban development in Vietnamese cities, especially housing development, we can see in practice the highly fragmented picture of the current plans and planning system in Vietnam.

- *Urban plan and development control*

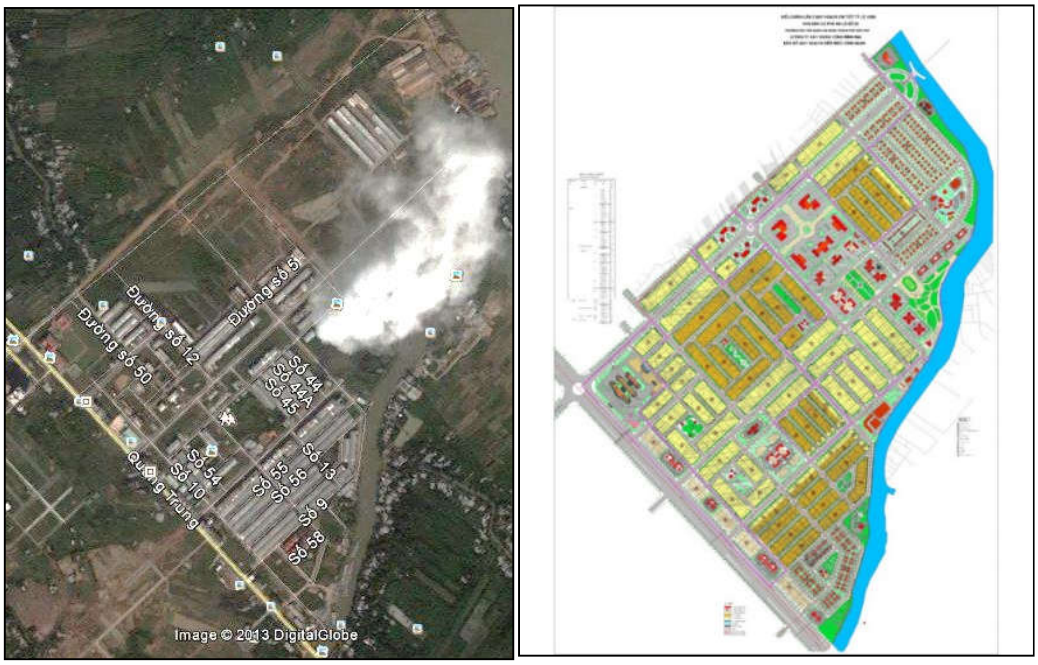
Generally, there are two types of plans for urban development in Vietnamese cities in recent year. The first one is the plan for *development control*. This type of plan is usually made for the existing urban areas within the city which have been developed over decades without plan or with a poor plan and urban management in the past. Figure 10 is as example for this type of plan which show the existing development on the left side and the approved plan on the right. The second type of plan is the plan for *new urban area development* which is usually made for attracting property developer to invest their money in urban and housing development. Such projects are usually located in the urban outskirts which are covered by agricultural land with very few households living there by agriculture livelihood. Figure 11 shows the middle stage of a new urban area project which has started in 2004 and its approved plan by the local authority.

Figure 10: Plan for development control compared with development on the ground



Source: Google and CAPI, 2014

Figure 11: Plan for investment development



Source: Google and CAPI, 2014

Within the Vietnamese housing context, self-development housing means that there is no professional developer. So, this type of housing has been developed by home owner themselves. And the other important characteristic is that there is no detailed plan for the area, or in some cases the area is indicated as 'self-renovation' with little regulations. So, there is a clear contrast with the Western planning and development management systems which can be much more strict and effective. For example, planning applications in the UK must be sought for all significant building operations including extension that add more than 15 per cent to a dwelling's volume, new garage closer to the road than existing dwelling, alterations to historic buildings and changes of use purpose of the building.

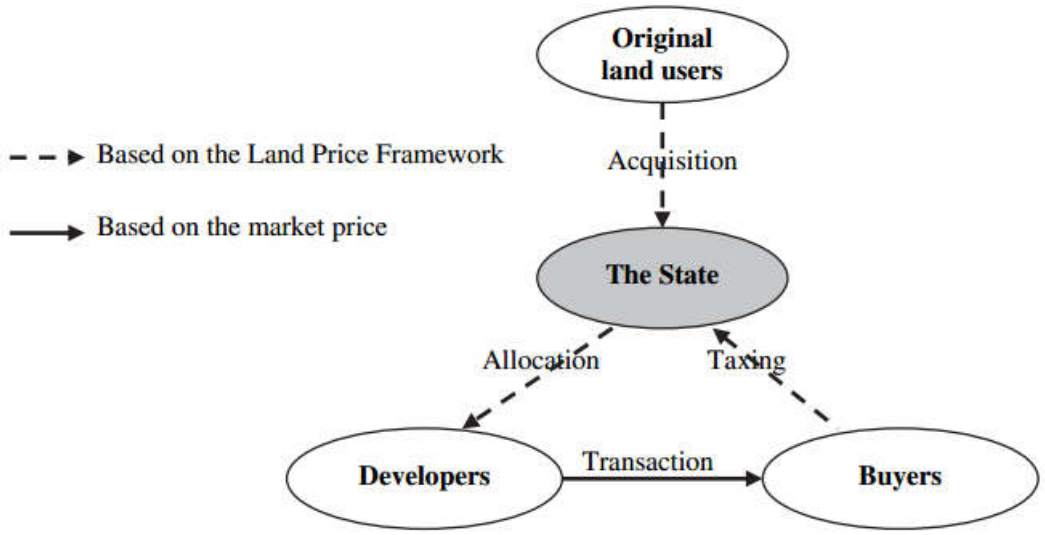
- *Land transfer in housing development*

Figure 14 shows the relationships between the stakeholders regarding land transfer in housing development in Vietnam. These relationships are based on the two-price system in a previous study by Thien Thu and Perera (2011a), in which only the transaction of land from the developer to the new buyer is based on the market price while the other transactions, including from the original land owner to the state and from the state to developer are based on the land frame-price which is set out by the state and is usually much lower than the market price (see detail in Figure 12). So, in recent years,

most of the land transactions have been done under market price, and the frame-price has been used for taxing purposes and compensation for the public development projects. There is also a big gap in between the commercial land and subsidized land prices, which usually differ by a factor of two or more. Thus, it is a key factor that is pushing people into the 'race' of housing development across the country in Vietnam. This phenomenon will be discussed more in chapter 6.

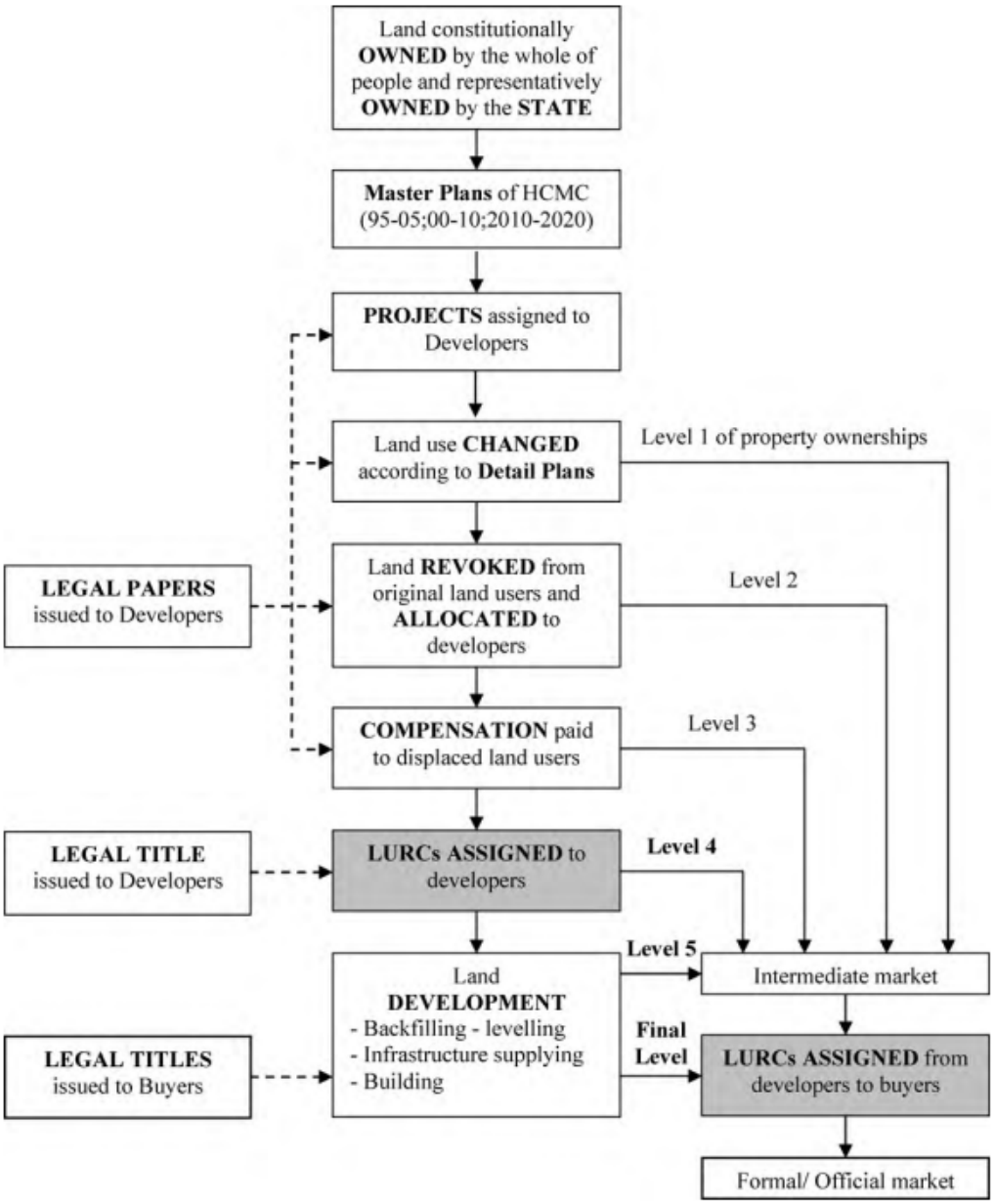
Figure 13 shows the six intermediate levels of property rights in the development process of a formal residential project in urban Vietnam. In that process, during the different stages of development progress, the land could have a temporary status of use right that could be transferred in both the formal and informal ways with different price levels.

Figure 12: The illustration of two-price system on land



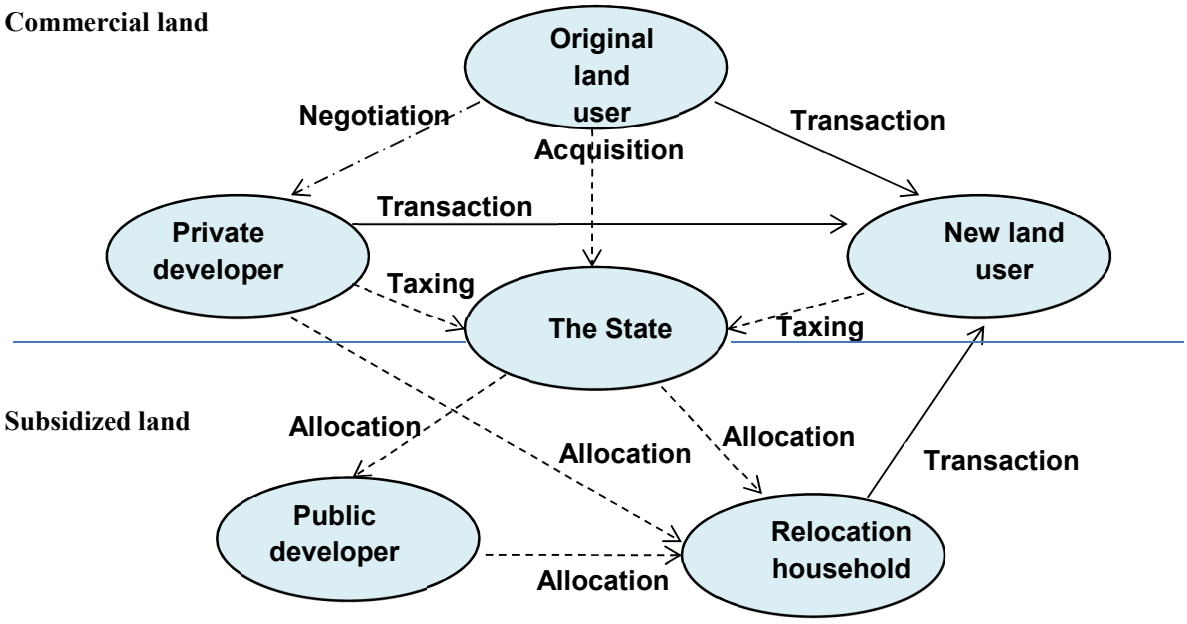
Source: (Thien Thu and Perera, 2011a)

Figure 13: Intermediate levels of property rights in the development process of residential projects in HCMC



Source: (Thien Thu and Perera, 2011b)

Figure 14: Land transfer in urban housing development in Vietnam



Note: ⟶ Base on the market price; ⇢ Base on the Land Frame-price;
⇢ Base on negotiation (only after 2003, before that base on Frame-price)
Source: Author modified from (Thien Thu and Perera, 2011a)

4.3 Overview of housing policy changes in Vietnam

This section briefly reviews the housing policy changes in Vietnam for the period from 1954 until recent years. After 1954, Vietnam was divided into two parts, the North and the South, until the Unification in 1975 after the Vietnam War ended. This review focuses more on the housing policy of the North Vietnam who won the War and took over the whole country after the War.

During this period, there was a clear distinction between housing policies before and after "*Đổi mới*" (Renovation) in 1986. Beginning with the public sector, the allocation of land for state-owned housing developers started in 1988. After that, a more 'opened' policy framework for housing and land was established with the issue of the Ordinance on Housing in 1991 and 1993 Law on Land (the first Law on Land was established in 1987, just after the Renovation) which encouraged the private sector to participate in housing development. As a result, the renovation of housing policy has fostered the construction of housing by the people in place of the subsidized housing in the past. However, at that time the concept of housing market was quite new, and the market was not completely based on the principle of the free market as yet.

a. The Pre-Đổi mới state subsidy period, 1954 -1985

In this period, the Vietnamese state adopted a subsidized housing policy with an implementation of the National Housing Program for state employees in cities. Many state bureaus and enterprises also took the initiative to use their own resources to provide housing for their employees. Investment in housing was therefore a part of the annual or five-year state plans. However, the distribution of housing to state employees was a complicated and lengthy procedure which usually took several years for approval.

- ***1954-1964***

After the Indochina War of Resistance which ended in 1954, some of the urban residents of the North Vietnam migrated to the South or returned to their rural homes. Furthermore, the French colonial cities were not destroyed by the war of liberation and were taken over intact by the state. Thus, housing policy was not an important state initiative in this period. In fact, it was only a policy on distribution of housing to state employees, not taking into consideration of the housing requirements of other urban residents.

- ***1965-1975***

In period from 1965 to 1975 the state budget was used in the North to build neighbourhood units with 2 to 5 story apartment buildings which were based on the Soviet Union model. Due to the lack of experience in urban planning and management, the state paid more attention to the construction of houses rather than the organization of urban space and infrastructure according to a master plan. Thus, housing construction in this period exceeded the capacity of the technical infrastructure such as water, drainage, electricity, and environmental sanitation. The extremely, high subsidy resulted in rent as low as only one percent of the employee's salary. This amount could not cover the maintenance and upgrading of houses which quickly degraded, creating damage and waste.

The amount of urban housing constructed in the period from 1960 to 1975 varied between the North and the South. This was due to the differences in the political systems and the opposite impact of urbanization. Housing survey data in 1994 showed that, in 1989, 42 percent of HCMC's population lived in houses which were built from 1961 to 1975 while in Hanoi the number was 23.6 percent, which means that, before union, housing industry in HCMC was developed much more than HNC during the war.

- ***1975-1985***

In the following ten years from 1975 to 1985, a National Housing Program, mainly for cities, was jointly implemented by the Ministry of Construction and Research Institutes in order to improve housing conditions. The program continued on the principle of an egalitarian distribution system, with heavy subsidies from the state budget. The housing was typically a poorly equipped 4 to 5 story apartment block with little comfort and monotonous appearance. The policy of state subsidization and distribution of housing fostered a passive behaviour among urban residents who did not care of maintaining their house, because this was considered to be the state responsibility.

In the 1980's, after the experience of the previous 20 years, several improved housing models were introduced, which were more convenient and with higher quality buildings with better appearance. Furthermore, an experiment in the trading, expansion and construction of houses under the formula "state and people cooperate to build houses" was tried in some areas. The outcome of these policies was that up to the early 1990's only 30% of the state's employees; mainly those in Northern cities, received housing from the state. The remaining 70% had to make their own housing arrangements or lived in very poor housing conditions. The goal of the socialist housing model was not achieved.

b. The Đổi mới Period, 1986 –recent

- ***1986-2002***

Since the implementation of '*Đổi mới*' policies in 1986, there have been many changes in housing sector. The state abandoned its subsidized housing policy and instead created conditions to encourage people to build their own houses. In 1990, one third of new housing was built using the people's own capital. Housing construction started rising, mainly by individual households, which could be seen everywhere. Houses mushroomed as people tried to improve their housing conditions on their own. The transfer of state-owned houses from state management to a commercial basis has been implemented through a regulation for selling state-owned houses to people who are leasing them. The Housing Ordinance was adopted in 1991 and is implemented along with subsidiary laws by governments at all levels. The state has also created favourable conditions for investment in housing production by management organizations and units in the cities.

- ***2003-recent***

The revised Land Law was adopted in 2003 which paved the way for private developers to invest their money in housing development under the scheme of development projects, which were usually called 'New Urban Areas'. Since then housing development projects, including self-build and pre-build housing projects, have mushroomed across the cities in Vietnam which have contributed significantly to the housing stock and made significant contribution to satisfy the housing need of urban residents. In this period, there were some modifications on the Land Law in 2009 and 2013, and especially the adoption of the first Housing Law in 2005 and Urban Planning Law in 2009 which fulfilled the gap in legal system regarding urban and housing development in Vietnam.

Table 14: Historical review of the housing policy in Vietnam

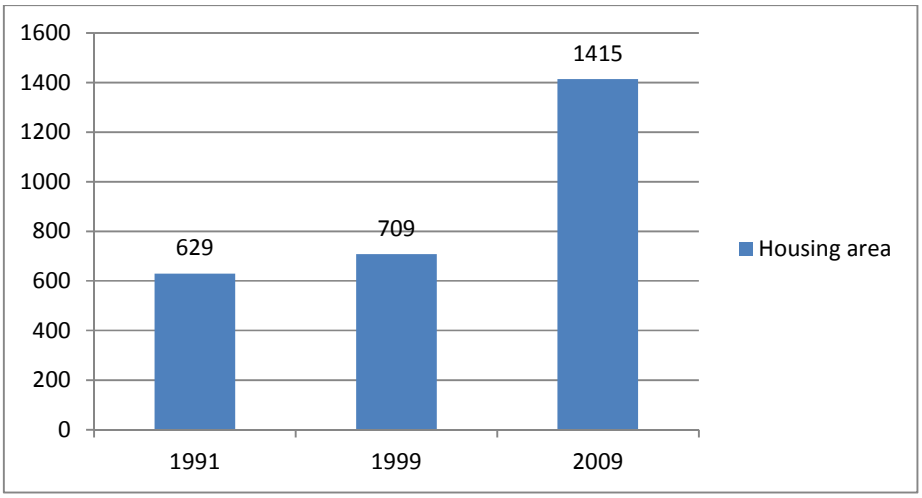
	1954-1965	1965-1975	1975-1985	1985-1995	1995-
Decades	No housing business was allowed prior to 1975 in the North including Hanoi.		No housing Business in Hanoi until late 1980's	Allocation of Land for State Const. Firms	
				1986 Doi Moi; 1991Ordnance on Housing; 1993 Law on Land	1998 Law on Land; 1999 Decree No.17
	Investment in housing was a part of the annual or five-year state plans.			State abandoned its subsidized housing policy.	
Policy	Housing supply is not as urgent as in the next decade.	The state paid more attention to the construction of houses rather than the organization of urban space and infrastructure according to the master plan.	National Housing Program mainly for cities was jointly implemented by MOC and Research Institutes to improve housing conditions	Abandoning subsidized housing and encouraging people to participate in housing construction by themselves.	Revising and improving initial legal and policy frameworks for housing and land.
Principles			Egalitarian distribution system with heavy subsidy from state budget.	Promotion of the market economy.	
Policy Outcome		Extremely high subsidy resulted in rents as low as 1% of employees salary which bars effective maintenance.	Up to early 1990's, only 30% of the state employees, mainly in northern cities receive state housing.	Majority of housing constructed by people themselves often without permission.	Several large housing project by SOEs. Majority of housing constructed by people themselves.
Types of Housing		Neighborhood units with 2 to 5 story apartment building based on Soviet Union model.	Poorly equipped 4 to 5 story monotonous apartment block with little comfort.		

Source: (JBIC, 1999)

4.4 Existing housing development in Vietnam

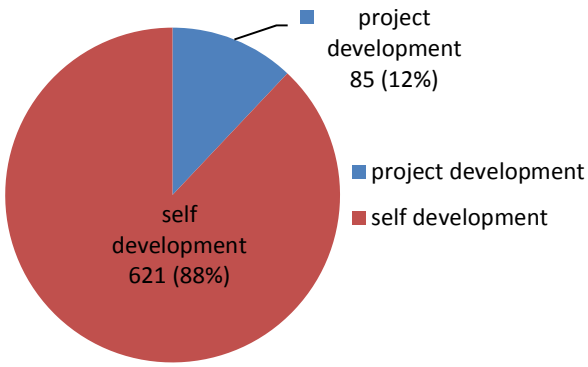
In adopting the housing policy which had built and supplied housing for the government officers, from 1960 to 1990 the Vietnamese government invested money to build over 16 million square meter of housing (including 3 million square meter of flat) in order to supply for nearly 30 percent of the government officers. However, from 1991, the Vietnamese government issued the Housing Ordinance in order to encourage every organization and individual participate in the housing development and admitted the right of housing ownership as one of the justifiably and legal rights of citizen.

Figure 15: Vietnam housing stock from 1991 to 2009 (mil sqm)



Source:(Go-VN, 2011)

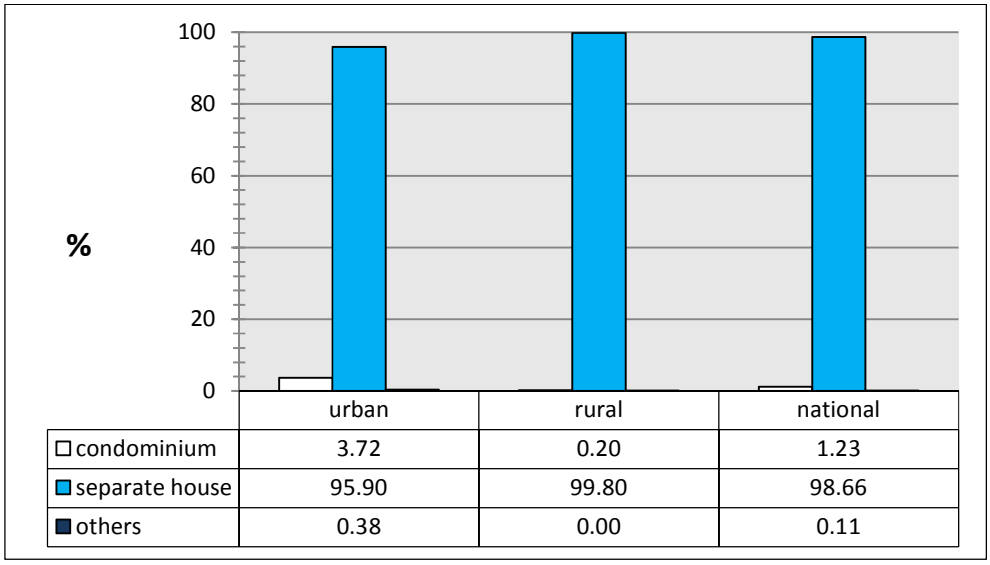
Figure 16: Proportion of housing area increase in 2011 (mil sqm)



Source: (Go-VN, 2011)

As mention earlier in Chapter 1, most of the housing developments in Vietnam are from the self-development of the citizen and mostly happened in urban core areas, while other housing projects from developers usually took place in new urban areas where agricultural land was existed.

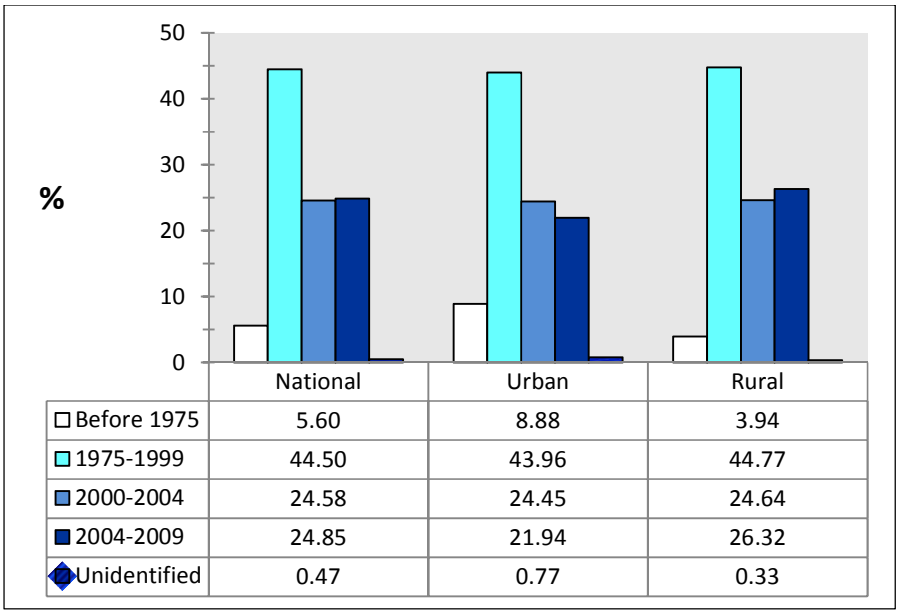
Figure 17: Types of housing in 2009



	urban	rural	national
condominium	3.72	0.20	1.23
separate house	95.90	99.80	98.66
others	0.38	0.00	0.11

Source:(Go-VN, 2011)

Figure 18: Proportion of housing area by period when first developed



	National	Urban	Rural
Before 1975	5.60	8.88	3.94
1975-1999	44.50	43.96	44.77
2000-2004	24.58	24.45	24.64
2004-2009	24.85	21.94	26.32
Unidentified	0.47	0.77	0.33

Source:(Go-VN, 2011)

4.5 Mekong Delta Region as a context

This research was conducted in Can Tho city, the biggest city in the Mekong Delta, Vietnam. Geographically, the Mekong Delta lies in the southwestern region of Vietnam, where the Mekong River approaches the sea through a network of tributaries (see Figure 20). The Mekong Delta displays a variety of physical landscapes, ranging from mountains in the northwest to flat flood plains in the southeast. The low-level flat plain is about 3 meters above sea level, and has a dense system of rivers and canals. The Mekong Delta Region administratively consists of 12 provinces and one city (see more detail in Table 29) which covers an area of 4.05 million ha; of which 2.58 million ha is land used for agricultural production and 379 thousand ha is used for aquaculture, accounting for 70.7% of country's aquacultural area. Annually, the Mekong Delta accounts for 51% of the country's rice production, 70% of fruit production, and 80% of fish production, which includes aquaculture. Agriculture dominates the region's GDP, accounting for 43.2% (Nghiem, 2010). About 20% of the total population of Vietnam lives in the Mekong Delta, and the population continues to grow. In 1990, there were 14.656 million people, and in 2010 there were 17.272 million people, with nearly 80% living in rural areas (MDPA, 2004, GSO-VN, 2010). In terms of ethnicity, there are four ethnic groups living in this region: Kinh, Khmer, Chinese and Cham. The Kinh people account for 92% of the population, and, along with the Chinese, they experience better living standards than the other groups. The Khmer are the most economically and socially disadvantaged group in the region (MDPA, 2004).

- *Spatial planning system in Vietnamese Mekong Delta Region*

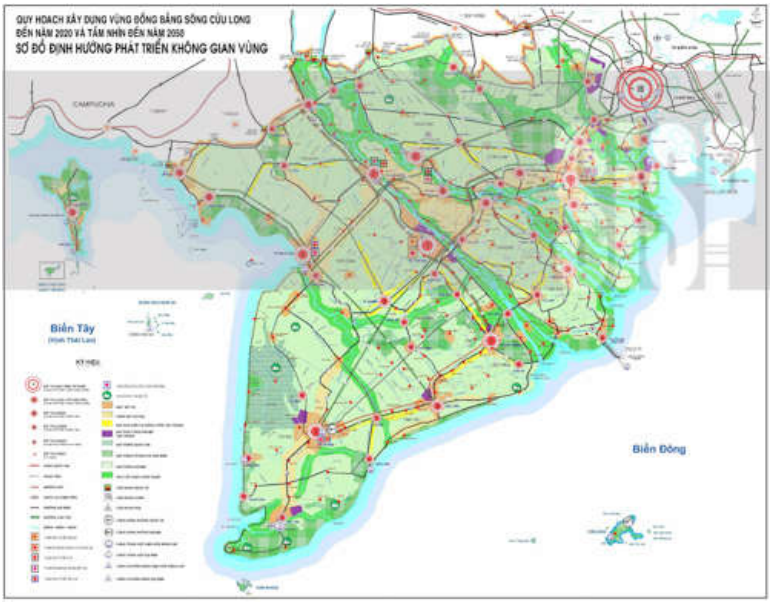
Vietnamese Mekong Delta Region plays an important role in Vietnam economy. Thus the main objective in the master plan for social-economic development of the Vietnamese Mekong Delta Region till 2020 is: "to build and develop the Vietnamese Mekong Delta Region into a major production area for agriculture and aquaculture of the country with high rate and sustainable economic development; develop the culture and social areas to catch up with the country level; a bridging area for economic and trading to other countries in the region; ensure the high political security, national defence and social safety" (Go-VN, 2014a). Thus, it has paved the way for the development of VMDR in recent year both at regional level and city/provincial level.

Moreover, in the construction plan of the Vietnamese Mekong Delta Region till 2020 and vision to 2050, the major development objective is: "the Vietnamese Mekong Delta Region till 2050 will be a large agricultural region in the global production; a dynamic and sustainable economic development with favourable investment environment; a high living condition in urban and rural area; a centre of culture, history and tourism with specific farm, forest and ecological regions with good landscape and environment" (Go-VN, 2014b). In that plan, urban areas were classified in to four categories based on flooding risk:

- High flood inundation risk (above 3m): Chau Doc borough and 08 district towns
- Moderate flood inundation risk (from 2m to 3m): Long Xuyen city and 06 district towns
- Flood inundation risk (from 1m to 2m): 02 cities Cao Lanh and Sa Dec; and 15 district towns
- Low flood inundation risk (below 1m): 06 cities Can Tho, My Tho, Vinh Long, Ben Tre, Rach Gia and Tan An; and 23 urban points including 17 district towns

In Vietnam, the socio-economic plan usually deals with the budget spending of the government, while the construction plan relates to the specific development and management of infrastructure projects, new urban areas, town and city. Thus, these two types of plans are working together as the major direction for both urban and regional development.

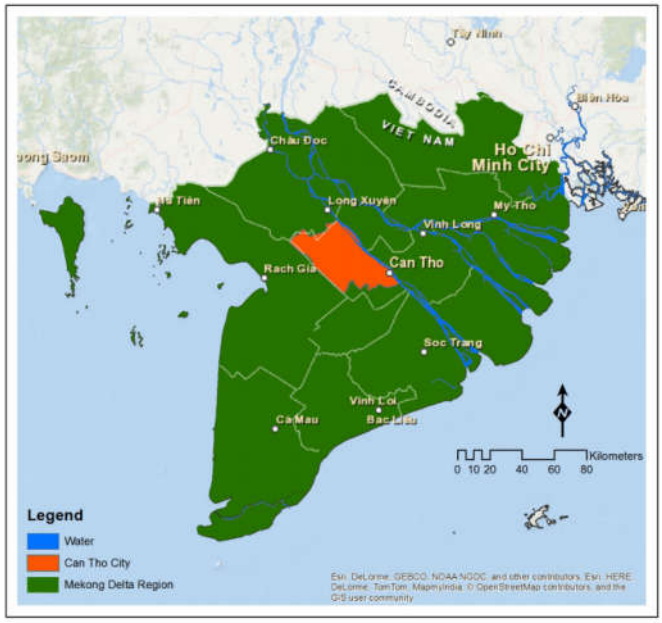
Figure 19: Construction plan for the Mekong Delta Region



Source: SISP, 2015

4.6 Can Tho city as a case study

Figure 20: Location of Can Tho city in the Vietnamese Mekong Delta Region



Source: Author generated from ArcMap, 2014

Can Tho city[4] is the biggest city in the Vietnamese Mekong Delta Region. The total population of the Can Tho city is around 1.2 million, in which urban population contributes 66.3 per cent (DoS-CTC, 2013). The city comprises of five urban districts include Ninh Kieu, Binh Thuy, Cai Rang, O Mon, Thot Not and four other rural districts include Phong Dien, Thoi Lai, Co Do and Vinh Thanh. Among those, Ninh Kieu district has the highest concentration of population in Can Tho city with a population density of 8,617 persons per square kilometre in 2012. While Vinh Thanh, a rural district, has the lowest population density with only around 400 people per square kilometre (DoS-CTC, 2013).

The total natural land area of the city is around 140,000 hectares. According to the 2014 city master plan, there are 3 main urban regions (Ninh Kieu-Binh Thuy-Tra Noc-Cai Rang, O Mon and Thot Not) and 5 other satellite towns (Phong Dien, Thoi Lai, Co Do, Vinh Thanh and Thanh An) which will only make nearly 20 percent of the total

[4]Before 01 January 2004, Can Tho City is a provincial city of the Can Tho Province. Since 2004, Can Tho Province was divided into Hau Giang Province and Can Tho City, which all had administration by the central government.

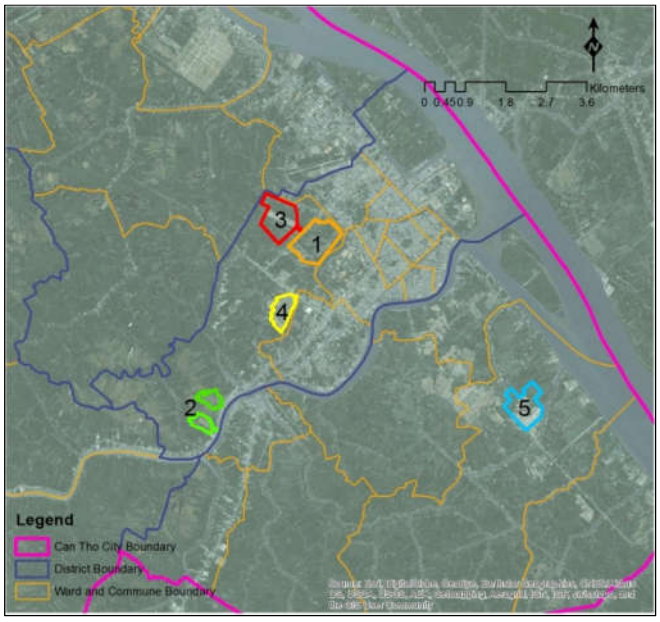
administrative area of the Can Tho city in 2030 (8 percent in 2014 report). In which, the total land use for residential purposes only contributes around 6 percent (nearly 8,000 hectares) (2.5 percent and 3,600 hectares accordingly in 2014 report). So, it is quite difficult to reach the target in just over fifteen years with the current low rate of population increasing which is just 0.87 percent each year in the 2006-2010 periods due to the low population policy and emigration to other regions.

The most part of the city land is use for agricultural purposes which make nearly 70 percent of the total land area of the city. However, from 2006 to 2010 with 48 percent of population working in agriculture sector just only contributed 10.4 percent of the city's GDP, while manufacture and construction industry contributed 43 percent and services sector took the rest 55.6 percent (DoS-CTC, 2013). So, there is a high demand of population shift from agriculture sector to other economic sectors within the city in recent years.

4.7 Research sites on housing development

As mentioned earlier in the methodology chapter of this thesis, five sites of residential areas in Can Tho city were carefully selected for the field survey. This section describes in detail of these sites and their nature of development. The Figure 21 shows the locations of the five sites of residential areas for this research.

Figure 21: Location of research sites in Can Tho city

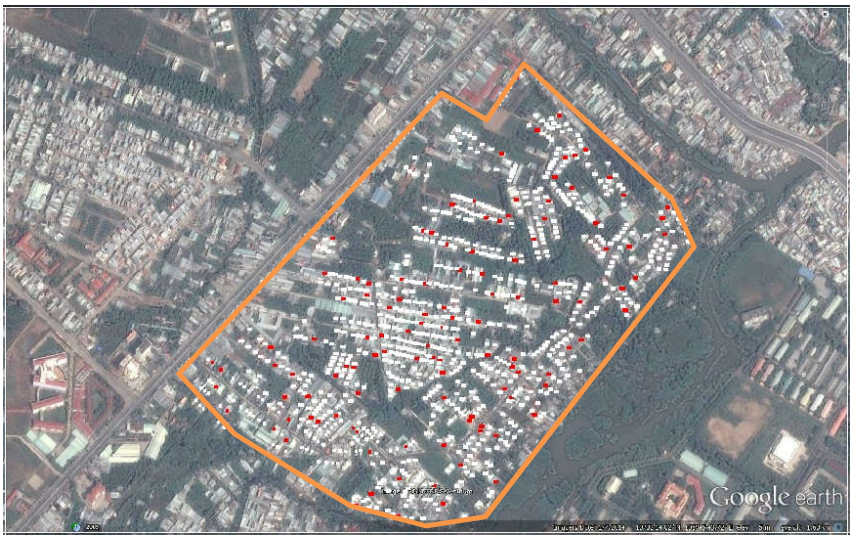


Source: Author generated from ArcMap, 2014

1. An Khanh Spontaneous Residential Area (SRA) – Site 1

This spontaneous self-help housing area is next to the Bung Xang Lake in An Khanh Ward and is a recently-developed housing area which is spontaneously built by mostly lower and middle-income groups in the urbanization process of Can Tho city. This area has been built up rapidly because it is near to the city centre and well connected to the new main street Nguyen Van Cu which is located in the New Administration Area of Can Tho city.

Figure 22: Selected cases of site 1 (An Khanh Spontaneous Residential Area)

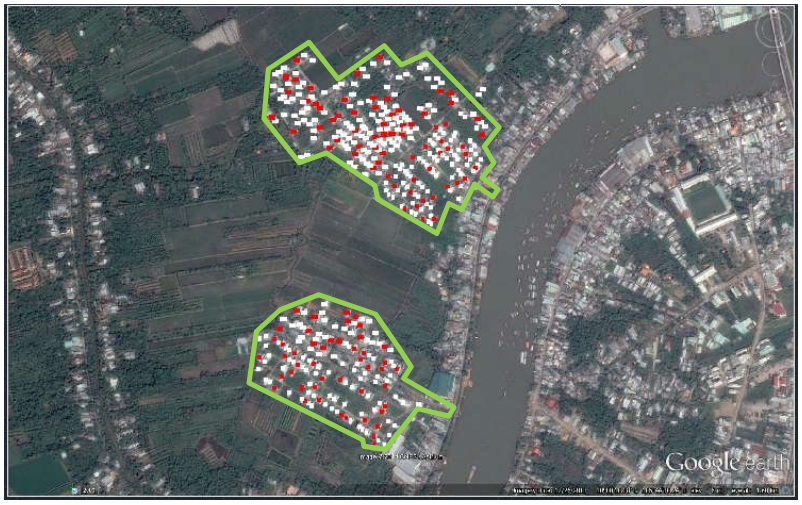


Source: Author (based on Google Earth image), 2014

2. An Binh Residential and Relocation Area (RRA) – Site 2

This housing site is a mix development of formal housing which is developed by local government to relocate some households whom were evicted house and land within some public development projects. The other part of the site is spontaneously developed by local residents and a small number of new comers.

Figure 23: Selected cases of site 2 (An Binh Residential and Relocation Area)

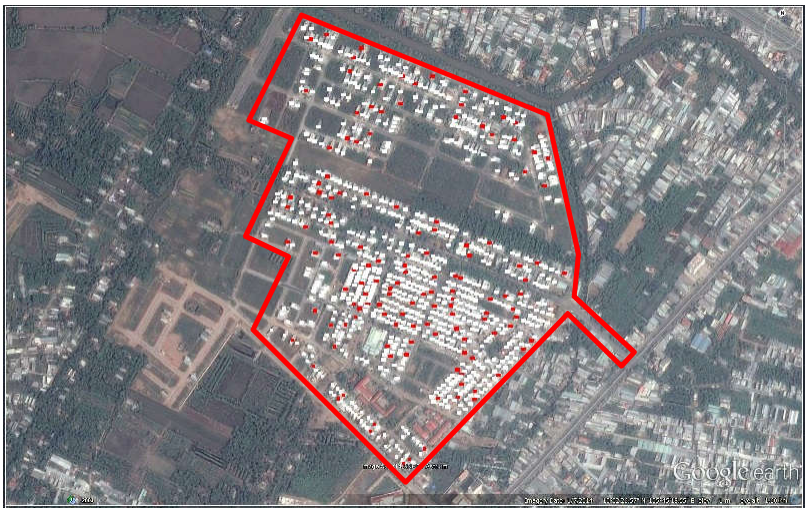


Source: Author (based on Google Earth image), 2014

3. Thoi Nhut Relocation Area (RA) – Site 3

This residential area was built in order to relocate people who were evicted from the public development projects of Can Tho city and Ninh Kieu district particularly. It includes the relocation site for the Urban Upgrading Project (UUP) which was funded by the World Bank (WB). This project was under the management of the UUP Management Unit (UUPMU) of Can Tho city. The other part was managed by the People's Committee (PC) of Ninh Kieu district through the Project Management Unit (PMU).

Figure 24: Selected cases of site 3 (Thoi Nhut Relocation Area)



Source: Author (based on Google Earth image), 2014

4. 91B New Urban Residential Area (NURA) – Site 4

This is a formal development sites with mostly self-help housing and a few pre-build houses by developer. This site locates in the An Khanh Ward near the city center which has been developed by a local government real estate company (Can Tho Housing Development and Trading Company-HDTC).

Figure 25: Selected cases of site 4 (An Khanh Spontaneous Residential Area)

Source: Author (based on Google Earth image), 2014

5. Phu An New Urban Residential Area (NURA) – Site 5

This is a formal development site with mostly pre-build houses by developer and a few self-help houses. This site locates on a new urban area project which has been developed by a private company (586 Construction and Transportation Project Limited Company-586) in the Hung Phu New Urban Area.

Among five sites of study, only this site had pre-built housing type which were developed by real estate company, while in other sites houses were built by individual owners. So, this site could help to explore some contrasts between these two types of housing and explain why self-build housing is the dominant type of housing in the city.

Figure 26: Selected cases of site 5 (Phu An New Urban Residential Area)

Source: Author (based on Google Earth image), 2014

4.8 Conclusion

This chapter gives a general background of the case study from the country level to the neighborhood level. It provides some detailed information for understanding the context in which the housing development process has taken place, as this process will be discussed further in detail in the next chapters of this thesis. Thus, the evidence and materials presented and reviewed in this chapter has provided some basic knowledge for answering the four research questions.

In this chapter, changes in housing policy since 1954 in Vietnam have been intensively reviewed. It was found that, although these policies were quite complicated and modified very often, the effectiveness of these policies in practice were quite low. However, after 'Đổi mới' the change in housing policy has triggered the process of self-help housing development across the cities in Vietnam. This housing boom will be discussed further in the following chapters.

This chapter also revealed how the system encourages self-help housing in Vietnam and some limitations of the planning system. It also discussed the general tendencies in urban form and some obvious observations about environmental risks. Thus, the evidence and material presented and reviewed in this chapter has contributed significantly to answering the third research question.

CHAPTER 5: SECONDARY DATA ANALYSIS OF URBAN AND HOUSING DEVELOPMENT IN VIETNAM AND CAN THO

5.1 Introduction

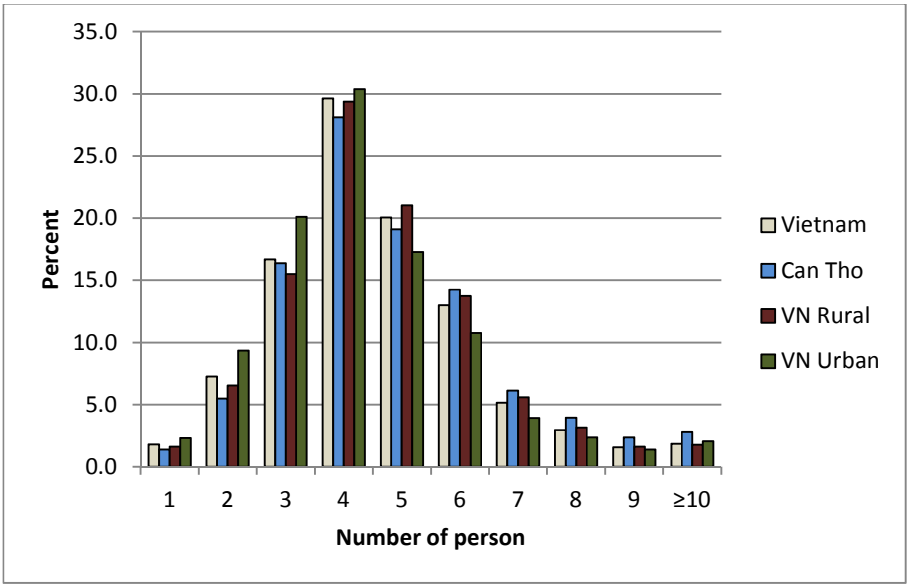
As mention before in previous chapter, urban and housing research in the VMDR is generally lacking. This chapter has three objectives. First, it reviews and analyzes the result from the Censuses that were conducted in Vietnam in 1989, 1999 and 2009. Because of limited access to the original data source from the Vietnamese government, the researcher used the data provided by the Integrated Public Use Microdata Series (IPUMS) instead. This data was downloaded over the IPUMS website in late 2013. Besides that, some other general data of population and housing from the Vietnam General Statistical Office (GSO) was also downloaded from the GSO official website and integrated in the analysis. Second, the City master plan and housing development plans will be reviewed in order to understand the future direction for the city development, including housing. And finally, it discusses the current system of Can Tho city planning and its workforce, and also the role of urban planning in housing development in Can Tho city.

5.2 Analysis of urbanization and migration in Vietnam

- *Household size*

Household size is an important factor that affect housing development process. In Vietnam household size is getting smaller over the past few decades. The average household size in Vietnam decreased from 5.2 person/household in 1979 to 4.6 person/household in 1999 and to 3.8 person/household in 2009 (GSO-VN, 2011). The household sizes are different between regions in Vietnam, with the highest household size in the Northwest region (more than five people per household) and lowest household size in the Red River Delta region (4.1 people per household). The household size in Vietnam has decreased in both the urban and rural areas. However, there is a slightly difference between household size in urban and rural areas in Vietnam with 3.7 people per household in urban area compare to 3.9 people per household in rural area in 2009 (GSO-VN, 2011).

Figure 27: Number of persons in household in Vietnam and Can Tho, 2009 (percent)



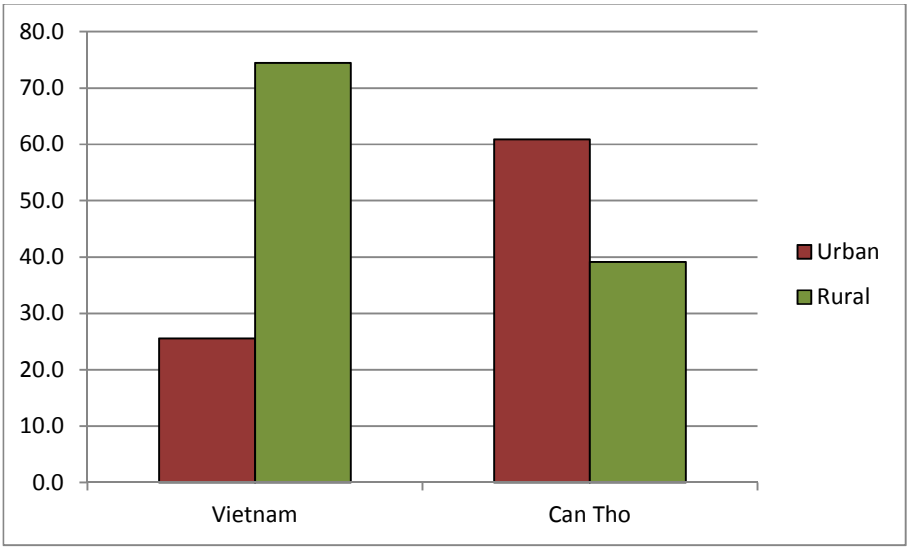
Source: Author compiled from Census 2009

The overall patterns are relatively similar between the different areas, with a large proportion of household having 3 to 6 people. The above figure shows that, although CTC is the biggest city in the VMDR, the household's pattern of the CTC is similar to the rural area of Vietnam which leans toward the large number of person in household comparing with the urban area which has smaller sized families. However, it could be partly explained by the low urbanization level of the CTC and the fact that many households are still living in rural areas. Among nine districts of the CTC, only Ninh Kieu, Binh Thuy and Cai Rang have high level of urbanization, the other two 'urban districts' O Mon and Thot Not and four rural districts including Phong Dien, Thoi Lai, Co Do and Vinh Thanh are still in low urbanization level.

- *Urbanization and housing characteristics*

Figure 28 shows the rate of urbanization in Vietnam and Can Tho city in 2009. For the whole country, the rural population is still high with over 70 percent of the total population. In CTC, the urban population is much higher, however it was over- estimated as in 2009 one rural district became an urban district just by changing the name and administrative statuses.

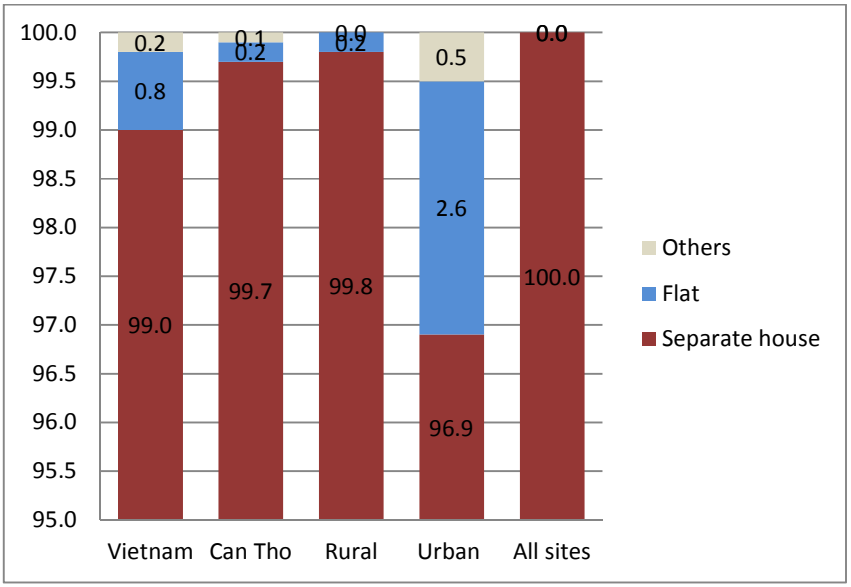
Figure 28: Urban and rural housing shares in Vietnam and Can Tho, 2009 (percent)



Source: Author compiled from Census 2009

This research focuses on self-help housing as it has been the dominant type of housing in Vietnam in the past few decades. In Vietnam, nearly 99 percent of housing stock is in the form of separate houses (see Figure 29). Most of these houses have been developed by the house owners. This rate is even higher in Can Tho city as few apartments were developed so far. Yet, in urban area the rate of flat is much higher than in rural area where the scarcity of land and the demand for building flat are very low. However, in urban area the proportion of flats is just around 2.6 percent of the housing stock (see more detail in Figure 29). This is quite low compare to some other developing countries nearby such as Thailand or China. However, the number of flats is increasing in recent years, especially in the two biggest cities in Vietnam, which are Ho Chi Minh and Ha Noi city, where the population is increasing rapidly over the past twenty years.

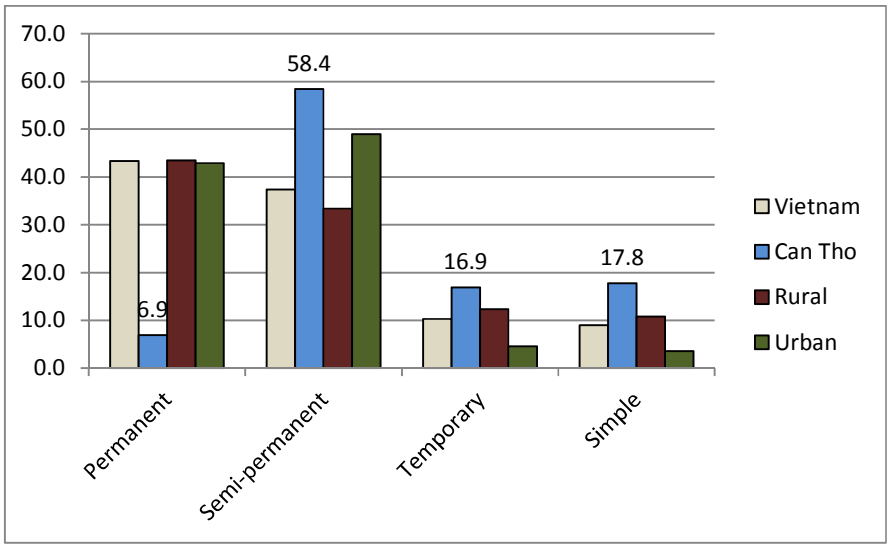
Figure 29: Shares of dwelling types in Vietnam and Can Tho and in Vietnam Rural and Urban Areas, 2009 (percent)



Source: Author compiled from Census 2009

From the Figure 30, we can see that although the proportion of higher-quality housing (i.e. permanent and semi-permanent housing) in Vietnam is quite high, with over 40 percent of the housing being permanent, for Can Tho this rate is comparatively low with only 6.9 percent permanent housing. And the low-quality housing (temporary and simple house) in CTC is quite high (over 34.7 percent).

Figure 30: Type of housing by structure in Vietnam and Can Tho, 2009 (percent)



Source: Author compiled from Census 2009

- *Urbanization and population*

The following table shows the six main geographical regions in Vietnam including: the Northern Midlands, the Red River Delta, the North and South Central Coast, the Central Highlands, the Southeast, and the Mekong River Delta. The significant influx and natural growth of population and the current trend of urbanization is described in the following sections.

Table 15: Urban share of population by region, 2009

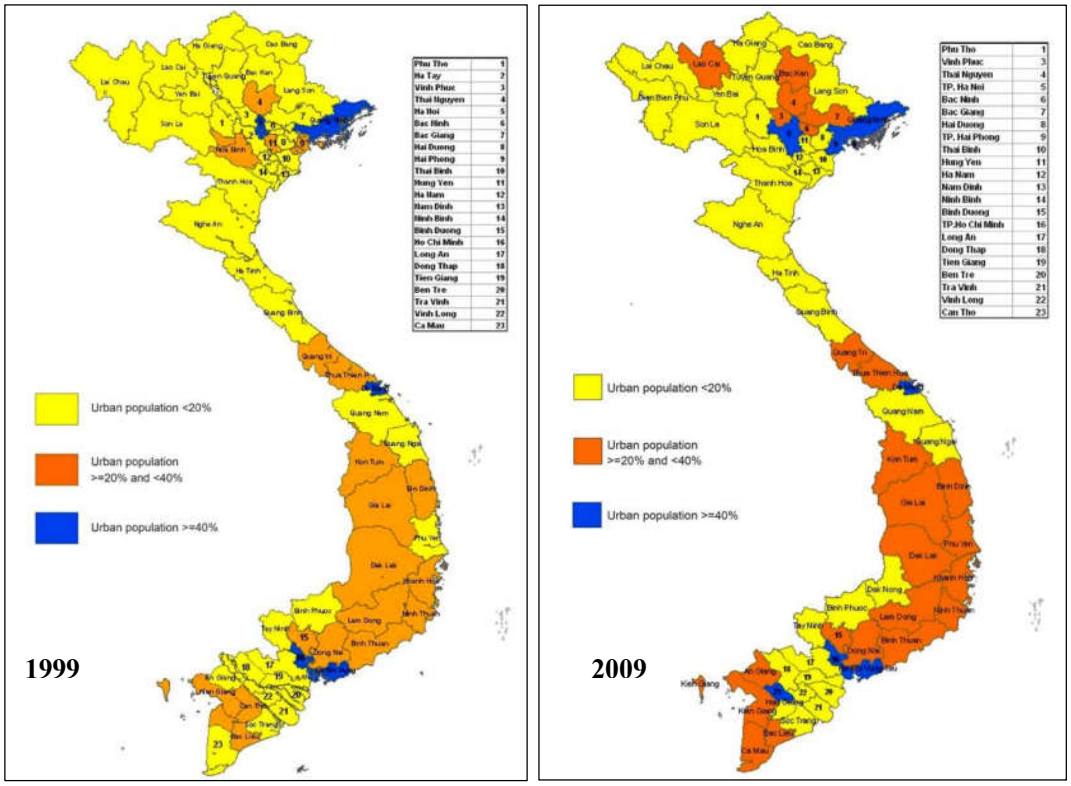
Region	Excluding 5 central government cities[5]	Including 5 central government cities
Northern Midlands and	16.0	16.0
Red River Delta	19.9	29.2
Northern and Southern Central Coast	20.9	24.1
Central Highlands	27.8	27.8
Southeast	30.1	57.1
Mekong River Delta	19.6	22.8
5 central government cities	62.7	62.7

Unit: percent; *Source*: Population and Housing Census, GSO 2009

In Vietnam, the urban proportion of the population has increased from 23.7% in 1999 to 29.6% in 2009 (25.4 million urban residents among 85.8 million people in the national population). Urban centres exist throughout the country. However, the process of urbanization has not taken place evenly. Northern regions and central highlands have substantially lower urban population than southern regions. This pattern can be seen clearly in Figure 31, which illustrate the proportion of the population living in urban areas in 1999 and 2009.

[5] Central government cities are 5 municipalities that are administratively equivalent to provinces and directly under the central government management, including: Hanoi, Ho Chi Minh, Hai Phong, Da Nang and Can Tho City.

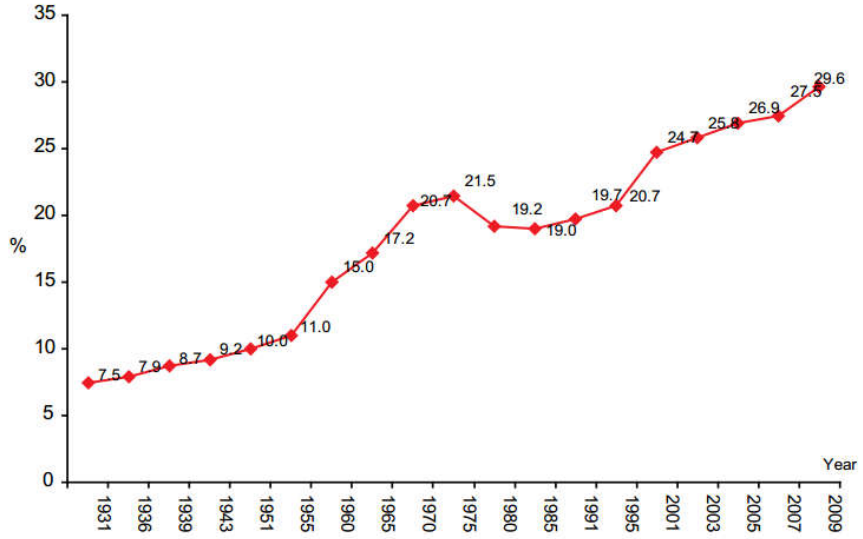
Figure 31: Proportion of population living in urban areas in 1999 and 2009



Source: Population and Housing Census, GSO 2009

After reaching an urban proportion of the population at 10% in about 1950, the speed of urbanization increased, thus by 1975, 21.5% of the population lived in urban areas. However, in that period, there were strong differences between the North and the South. The level of urbanization decreased slightly in the North, while it increased substantially in the South. After the country was reunified, there was a substantial decline in the urban proportion of the population throughout the country until 1982, when it had fallen to 18.4%. Since then, the level of urbanization has increased gradually to 20% and by 2009 it had reached 29.6% (see Figure 32).

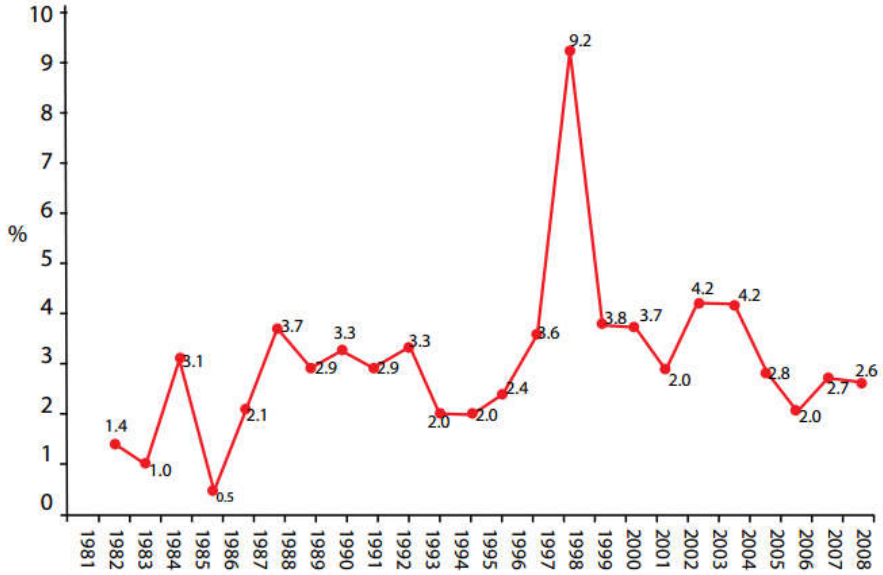
Figure 32: Proportion of population living in urban areas from 1931 to 2009



Source: Population and Housing Census, GSO 2009

Between the two censuses of 1999 and 2009, national population increased by 9.5 million people, of which 7.3 million (accounting for 76%) was in urban areas. However, the increase in urban population was not only by immigration but also by boundary or administrative status changes of towns and cities in Vietnam. This issue is also reflected in Figure 33 which shows the growth rate of urban population in Vietnam throughout the years, with some sharp increases and falls when boundary and administrative status of urban areas were expanded or combined together. Figure 32 shows the growth of urban population in Vietnam from 1932 to 2009. In general, urban population in Vietnam grows steadily over the years. However, there was a decline in urban population in Vietnam in the period from 1975 (country unification) to 1985 (the year before renovation) as many urban residents in the southern Vietnam had migrated to the other countries, especially to the United States of America, as a result of the Vietnam War.

Figure 33: Urban annual population growth rate (%) in Vietnam from 1931 to 2008



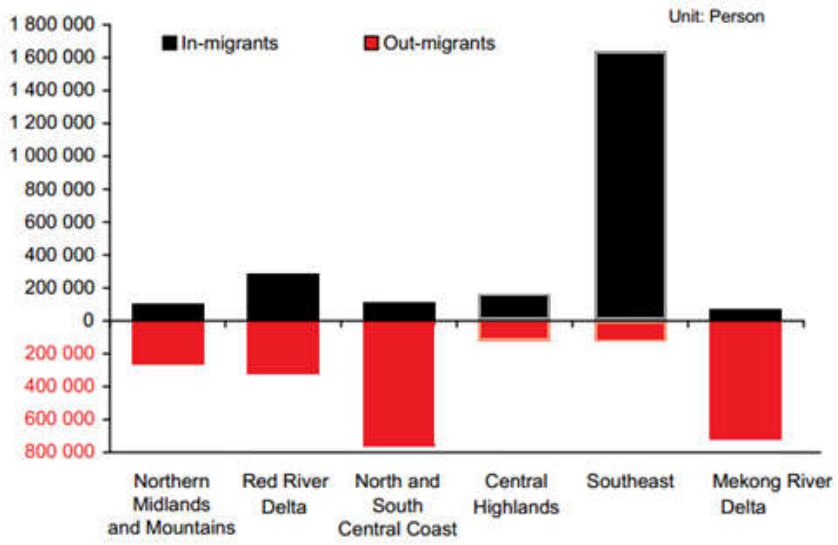
Source: Population and Housing Census, GSO 2009

- *Migration and its effect on urban and housing development*

Recent years, in parallel with the economic reform and development, the urbanisation speed is also increasing in most of the Vietnamese cities and urban areas. The change in the economic structure from agriculture to manufacture and services has led to the rural-urban migration in the big cities and urban centre of regions in Vietnam.

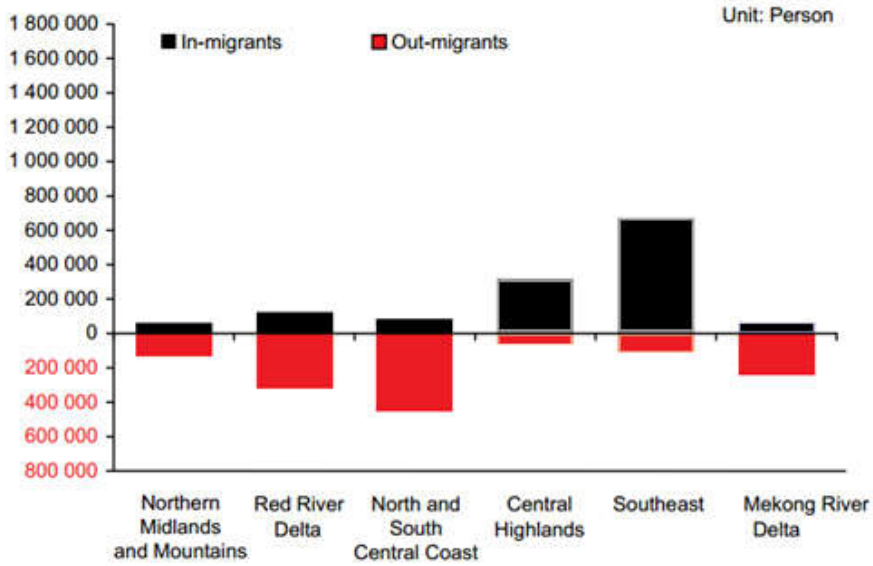
Figure 34 and Figure 35 show that the speed of out-migration in the Vietnamese Mekong Delta Region has increased in the past few decades and the amount of out-migrant was much higher than in-migrant. Figure 37 shows that the largest regional migration flow was from the Mekong River Delta Region to the Southeast Region with more than 714 000 people. Most of the out-migrants of the VMDR had moved to the Southeast Region for jobs as this region has been highly industrialised compared to the VMDR. A large regional variation in migration between urban and rural areas was also found (see Figure 36). The Mekong River Delta has 'lost' population through migration in both rural and urban areas but the rural areas lost substantially more people than urban areas. This explains the low urbanisation speed of the cities in the VMDR, including Can Tho city, compare to other cities in the Southeast Region of Vietnam.

Figure 34: In-migrant, out-migrant and net-migrant population in the five years preceding 2009 Census for inter-provincial migration by region



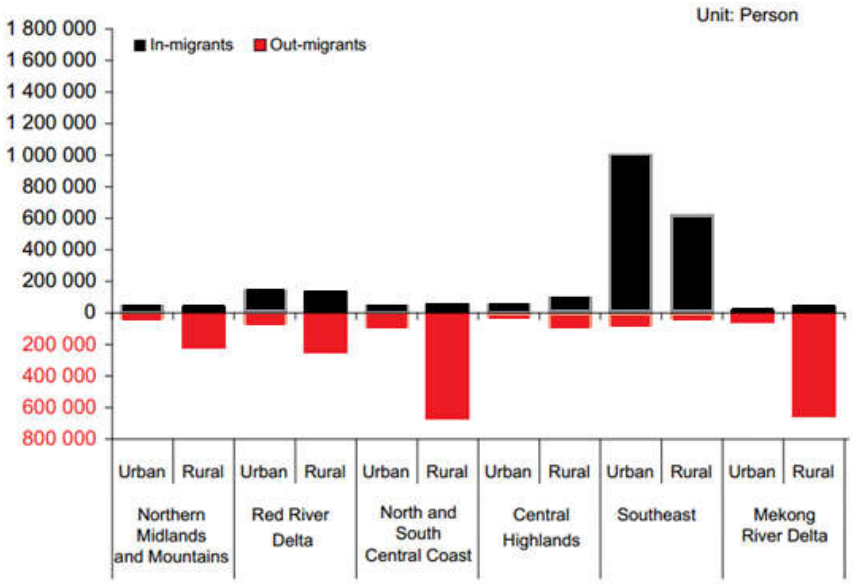
Source: Population and Housing Census, GSO 2009

Figure 35: In-migrant, out-migrant and net-migrant population in the five years preceding 1999 Census for inter-provincial migration by region



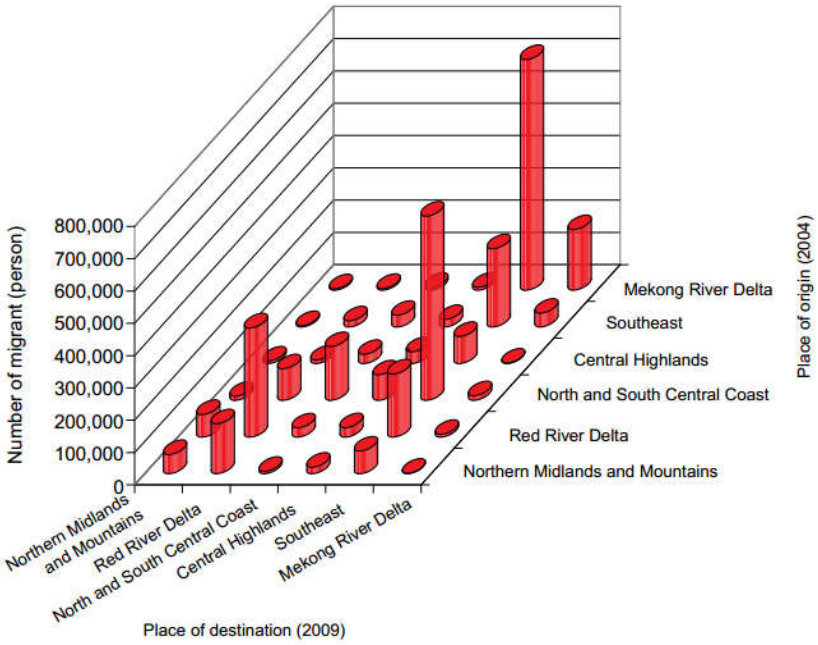
Source: Population and Housing Census, GSO 2009

Figure 36: In-migrant, out-migrant and net-migrant population over the five years preceding 2009 Census for inter-provincial migration by urban/rural place of residence and region



Source: Population and Housing Census, GSO 2009

Figure 37: Number of inter-provincial migrant by region of origin in 2004 and region of destination in 2009



Source: Population and Housing Census, GSO 2009

- *Poverty in Vietnam*

This section briefly discusses the poverty issue in Vietnam and the VMDR in particular in order to understand more of the driven forces to the process of housing development in Vietnamese cities in recent years. As an agricultural country suffered from the war, the poverty issue has been an important issue for the Vietnamese government in the past few decades. With the great effort in economic development, after just 12 years (from 1992 to 2004) the poverty rate in Vietnam had decreased from 30 percent to 8.3 percent. The poverty line has been lifted every year or two (see Table 16), however with the high rate of inflation in Vietnam. The poverty rate in rural areas was much higher than in urban areas (21.2% and 8.6% respectively), which means that there was one household under poverty line among five households in Vietnam rural areas (GSO, 2004). In the VMDR, the poverty rate was around 15.3%, much higher than the average of the country as this region still relied much on agriculture production and the low urbanization level.

Table 16: The Vietnamese Government's poverty lines from 2004 to 2015

Period	Urban	Rural
2004	218,000	168,000
2006	260,000	200,000
2008	370,000	290,000
2010	450,000	360,000
2011-2015	500,000	400,000

Unit: VND/person/month

Source: Vietnam household living standards survey, 2010

5.3 City master plan and housing development plans

This section discusses the existing planning regulatory framework in Can Tho city and its impacts on the urban and housing development of the city in recent years. As in some other developing countries, which are in transition, Vietnam has a weak urban planning system. French records showed that by the declaration of independence in 1945, 'modern' urban planning, cadastral maps and land-titling systems covered most of Hanoi, Hai Phong and Ho Chi Minh city (AusAID, 2000). However, for the other cities such as

Can Tho, the urban planning legislations were still weak and remained so until the country unification in 1975.

According to the Can Tho department of construction (DoC), there was no masterplan for the Can Tho city until 2006, when the first city development masterplan was approved. This master plan was made by an HCMC-based planning consulting company which belongs to the Vietnamese ministry of construction (MoC-VN, 2006). This plan was expected to pave the way for the city development after becoming a central administrative city in 2004 (VCP, 2005). However, it appears that it did not succeed in doing this task (interview with DoC's official, 2014), due to the lack of feasibility of some proposals and too-ambitious targets. Nevertheless, this plan was in place until 2013, when a revised master plan for the Can Tho city was adopted (Go-VN, 2013, MoC-VN, 2013). Although the revised master plan was reviewed and modified with the help of an international group of consultants from a famous university in Belgium, who have had some research and consulting experiences in Vietnam and the Mekong Delta, this second master plan seems to have had some of the same limitations as its predecessor (interview with DoC's official, 2014). For example, it has kept the infeasible approach that involved trying to build up a 4,100ha new city centre at O Mon, a place which is covered by rice paddy fields and 30km far away from the current city centre, for the whole new population of 160,000 citizens.

However, in the revised master plan for Can Tho city, the issue of sustainable development has been adopted as a theme for urban development. One major aim of this plan is "to develop the city within a comprehensive, balanced and sustainable direction, which ensures the national security, develops the city in harmony with the natural landscape, encourage the water-urbanism and eco-city which are the main characteristics of the Vietnamese Mekong Delta Region" (Go-VN, 2013).

In this plan, the housing development direction for the urban areas in Can Tho city was divided into three groups: renovation and mixed development residential areas, which are mostly locate in the Ninh Kieu and Binh Thuy districts; concentrated high-density residential areas, which locate interleaved with the first group and some other new urban areas such as O Mon and Cai Rang; and the low-density garden housing areas at the outskirt of the city centre and sub-urban areas. So, it is intended that, besides developing new residential areas, the city has to pay attention to renovation and upgrading

the existing residential areas within the city, which have been developed without strict control in the past few decades. It is also noteworthy that the plan envisages a selective densification which is inconsistent with the prevailing development pattern to date.

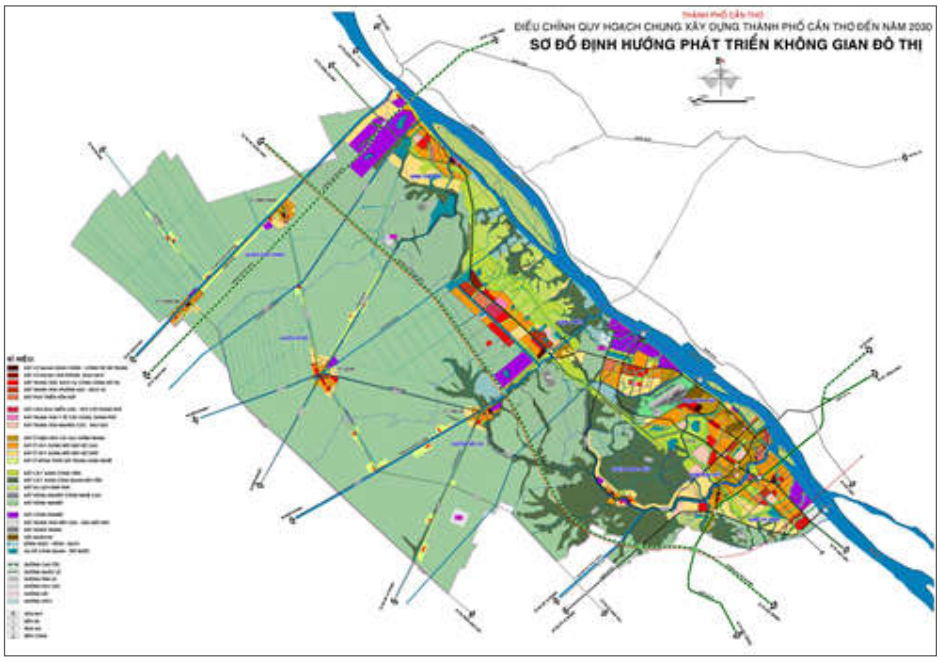
In general, because of the inconsistency and delay in adopting the city master plan, there are very few zoning plans which were made and approved from 2006 to 2015. This is a big potential obstacle in controlling and managing the city development, and also for the direction of public investment in recent years in Can Tho city. It may be argued that this has resulted in a spontaneous and fragmented city development, especially in respect of housing development.

In 2015, the Can Tho city council has adopted the outline for the program for housing development till 2020 with a forward vision till 2030. In that outline, the city aims to reach the following objectives: increase the average floor space per capita to 25.5 square meter in 2020 for the whole city (both urban and rural districts), and 29 square meter for the urban areas (urban district areas); increase the portion of permanent housing in urban areas to at least 75 percent of the housing stock, without flimsy housing; increase the affordable housing stock to 504,000 square meter (equivalent to 7,200 dwelling units), student housing stock to 264,000 square meter (equivalent to 6,600 dwelling units), and industrial-zone-worker housing to 27,000 square meter (equivalent to 675 dwelling units). Moreover, another priority of the city is to develop housing for particular social groups of people, including affordable housing and social housing, encourage the development of condominiums in the new urban areas, and increase the land stock for relocating people from the public urban development projects. From 2020 to 2030, increase the average floor space per capita to 30 square meters for the whole city.

However, at the time this research was taking place, the official plan for housing development of Can Tho was still not approved. This plan has been developed based on the national strategy for housing development, which was just approved in 2011 (Go-VN, 2011). According to the Can Tho's DoC, up to the middle of 2015 there were a total of 47 residential development projects which had been approved. However, only 29 projects have been built up (see more details of housing projects in Appendix D); the others include 11 projects which were cancelled by the local government and 7 projects which are under consideration due to the developers being unable to deploy resources or the government unable to contact the developers (see more details in Table 17 and Table 18).

And the progress of the continuing projects is still low in terms of both the construction and transaction rates. So, after fifteen years of developing from 2000 to 2015, only 10,700 housing plots of the planned total 26,762 plots were sold and 3,644 dwellings out of the total 6,545 dwellings were sold. Nine other social housing projects were specified, including: 4 housing projects for students, 2 housing projects for workers in industrial zones, and 3 other housing projects for the low-income people in the city. However, these 'social housing' projects are still under development or construction, so few residents were housed under this housing scheme as yet in Can Tho city.

Figure 38: Adjusted city master plan approved in 2013



Source: Can Tho's DoC, 2014

Although these projects were developed under the name 'social housing', they have been developed also using private developers and with almost the same procedure as with the other private commercial housing projects, except that there is some support from government, in that the developer could access low interest loans from the commercial banks. They are much different from what is called social housing in the developed countries, especially the European countries such as the UK or France, in which the government own a significant housing stock and provide it to people in housing need and with low-incomes. So, in Vietnam these 'social housing' projects, together, with a larger volume of self-help housing, are supplying a large amount of affordable housing

stock for the low and middle-income families in urban areas. However, it may be the case that this has made the other commercial housing projects less successful, delayed or even failed, because of the higher cost of their housing products.

Table 17: Formal commercial housing development projects in Can Tho city, from 2000 to 2015

Residential development project	Amount
Cancelled projects	11
Delayed projects (developer unable to do or unable to contact the developer)	7
Continuing projects	29
- Total housing plot (plot)	26,762
- Total floor area (sqm)	3,570,000
Total approved residential development projects	47

Source: Can Tho's DoC, 2015

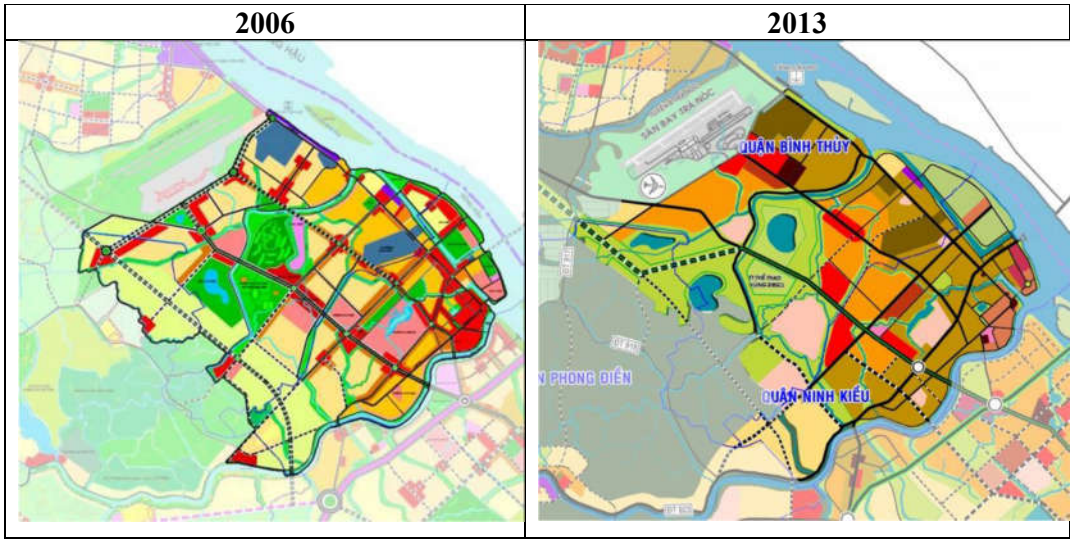
Table 18: Total dwellings been built within the formal commercial housing development projects, from 2000 to 2015

Type of dwelling	Amount	Floor area
Flat <70sqm	1,512	84,520
Flat >=70sqm	553	54,900
Separate house	4,480	779,480
Total	6,545	918,900

Source: Can Tho's DoC, 2015

Although overall actual housing development has grown rapidly since 2002, the city master plan was first approved in 2006. Since then, many housing projects were planned and constructed. However, the city authority realized that there were some failures in the city development strategy, for example in relation to reserving some city green belt and the location of the new city administration area. So, the revised master plan has just been approved in 2013, with the support from an international planning consultant from Belgium and a defence consultant from France. Parts of these plans are shown in Figure 39, which cover the central area of Can Tho city and the five research sites of this study.

Figure 39: Plans for the Central Urban Area of CTC in 2006 and 2013 (extracted from master plans)



Source: CAPI, 2014

In the Vietnamese Mekong Delta Region, Can Tho is the biggest city, with population over one million people. However, from the master plan we can see that most of the city land is still used for agriculture purposes and currently the total number of people working in agriculture is still high. The housing development strategy has also changed between the two master plans. More areas in the city core were approved for the local residents to improve their existing housing conditions or rebuild themselves, instead of developers building brand new residential areas. This reflects the trend of pro-poor housing policy from the authorities. In consequence, the new urban areas will be built up in the new areas on agricultural land.

Since 2004, the city's government has tried to control the growth of spontaneous housing development by not granting formalization for any spontaneous residential area. This policy was established in order to restrict the people who have land in the areas that were not covered by detail plans to develop housing spontaneously, which could lead to many problems of land management, planning, environment and urban management. However, this policy only aims at the individuals who want to change their larger agricultural land plot into many small plots of housing for sale to potential residents or small builders, without any approval from the local authority. In other words, this policy has just applied for the large scale individual development. For the small scale or single case of housing development, people can apply for housing formalisation when it fits the

regulations. Thus, from 2002 to 2009 the total number of spontaneous housing which has been developed by individuals continued to grow rapidly. Some of this gets formalised, especially those which were sold to new owners, but some of it does not, as people would have to pay a large amount of tax money for changing the land use purpose.

- *Analysis of development pattern and urban form*

One special characteristic of housing development in the VMDR is that wherever there is a river or canal there are houses. The housing development in VMDR is strongly attached with the water system of the delta, especially for the rural housing. Thus, in the context of a low wet land region of VMDR, the local residents are facing a high flood risk, which not only effects their houses but also their livelihoods (see Figure 40).

Figure 40: Images of flooding and poor urban housing

Figure 41 shows an example of Nga Bay (Seven Waterways) town, a neighbour town of the Can Tho city, where urban development has been strongly based on the water landscape. All the seven strait watercourses (in light grey) converge at one point where the urban centre locates (built up areas are in white). The road and houses are built on both sides of the canals right adjacent to the watercourses. As agricultural land is divided into small parcel (usually around 1-5ha) and scattered across the VMDR, so most people in rural areas traditionally built their houses on or close to their farming land and usually next to the waterways, for water supply and transportation of the farming products. In rural areas, people are not required to apply for housing construction permit. The major reason is that there is no plan for the villages in rural areas, but only in some big towns. So, people could apply to change some of their land to residential purpose and build up their own house. This permission has developed the bad habit of people in the peri-urban

areas and some other areas that become urban areas in recent years after administrative boundary changes. Some people still decide to build their house without permission especially when it is a simple one-storey house (or 'nha cap 4').

Figure 41: Urban location and water junction relationship

Source: Google, 2013

- *Provision of public services and facilities in Can Tho city*

In the past twenty years, as some other big cities in Vietnam, the growth of the Can Tho city both in terms of population and area has been much faster than the growth of infrastructure provisions and community facilities in Can Tho. Existing public facilities in Can Tho such as medical, education and shopping facilities are spatially distributed base on market force. At the neighbourhood level (i.e. ward), public facilities include park, medical centre, cultural centre, market and public schools and the people's committee of the ward is the legitimate authority to provide such services. Some other public services such as bank, post office, personal service, restaurant or shop are provided by either public or private companies as the result of the privatisation policy and they have provided a significant number of jobs and contribution to the local economy.

However, within the five sites of this research, only the site 3 (Thoi Nhut relocation residential area) has some public facilities such as primary school and a market,

site 5 (Phu An NURA) has a market has been developed as planned, the other sites do not have any public facility at all. In other words, those required public facilities are still 'on the paper' as the developers did not consider building them as a top priority, the have just focused on developing the basic infrastructures such as road, water and electrical systems and house as they think it was the fastest way to sell their product (house or housing land plot) and recover their investment costs. As a result, many new urban residential areas in Can Tho city have poor provision of public facilities and services.

Besides that, one of the most important public facilities is a park and children playground is conspicuous by its absence in not only the new development residential areas but almost the whole city. The government authorities are ignoring the need of open space for urban residents, especially that for children's physical and mental development. In fact, there are few green spaces and playgrounds in the city, but they are all located in the city centre and in small scale of services. Thus, the existing open space in Can Tho city were never considered to offer easy accessibility to their users. In most of the neighbourhoods, open space is non-existent or poorly managed. The provisions of park, playground and sport field are even worse in the unplanned areas than in the planned residential areas. In order to maximise their profit, some housing developers has tried to minimize the area of green space and public space to increase the area for housing.

5.4 The current system of Can Tho city planning and its workforce

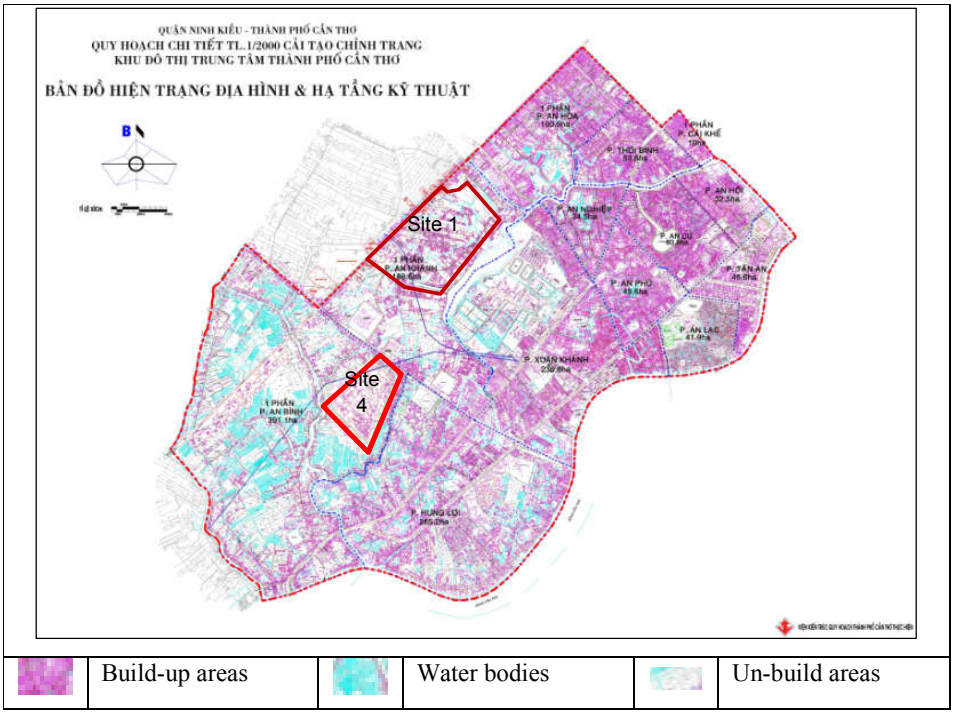
- *Planning adoption in Can Tho city*

In Vietnam, there is a lack of consistency between policies on housing and other policies on land, investment, finance and planning. The housing sector is related to many other fields such as planning, land, construction investment and finance. However, each of these fields is under the control of a different state agency. For instance, land issues are managed by the Ministry of Natural Resources and Environment, investment procedures are under the management of the Ministry of Planning and Investment, construction issues are under the management of the Ministry of Construction, and financial issues including taxation are managed by the Ministry of Finance. Therefore, policies related to the housing development have been issued but are still incomplete and inconsistent, and thus have made some difficulties for the housing developers.

Construction planning is considered as the most important factor that should be done in the first stage. However, the current urban planning system, particularly the detailed planning for urban areas, is still lacking and inconsistent. The procedures of making and approving plans are still very complicated and slow. Many urban areas are still lacking planning, so that the development of housing is still done in the spontaneous way and usually with poor infrastructure. Some residential areas were built up but suffer from lack of clean water supply system or sewerage system that causes inundation and unhygienic environment.

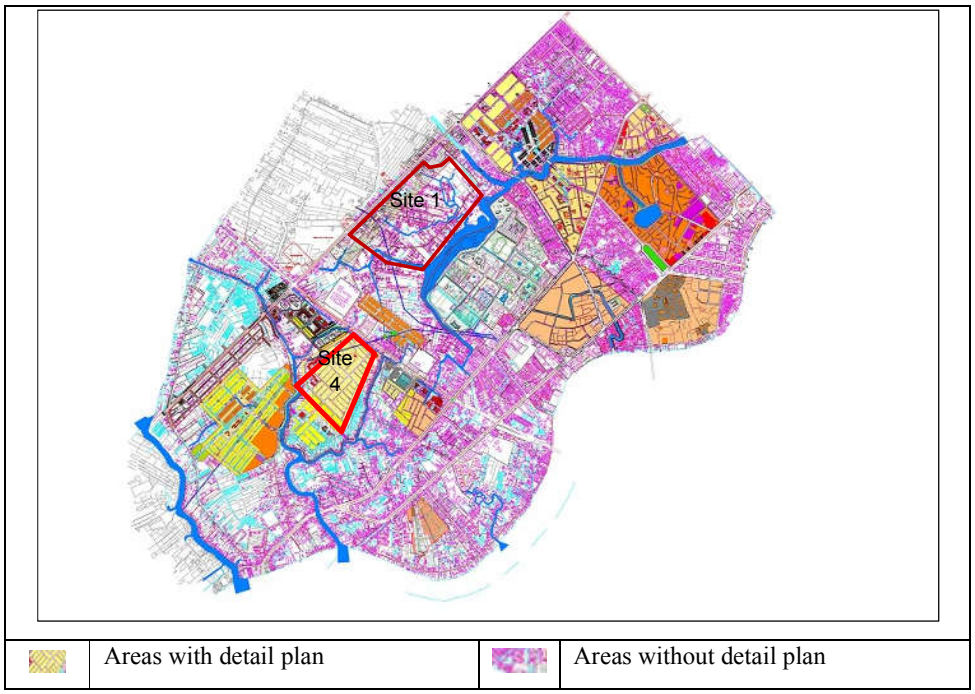
The three following figures (Figure 42, Figure 43 and Figure 44) show a sample of the current urban planning system in Can Tho city, which is used for both the urban development and management purposes. Due to the lack of the city master plan for a long period until 2006, the city development relied on the fragmented zoning plans and detail plans for particular development areas in the city. Thus, some areas in Can Tho city are not covered by any plan and this is one of the major reasons for the spontaneous development in the city.

Figure 42: Map of the existing building and infrastructure of the Can Tho city central area (including site 1 and 4 of the research)



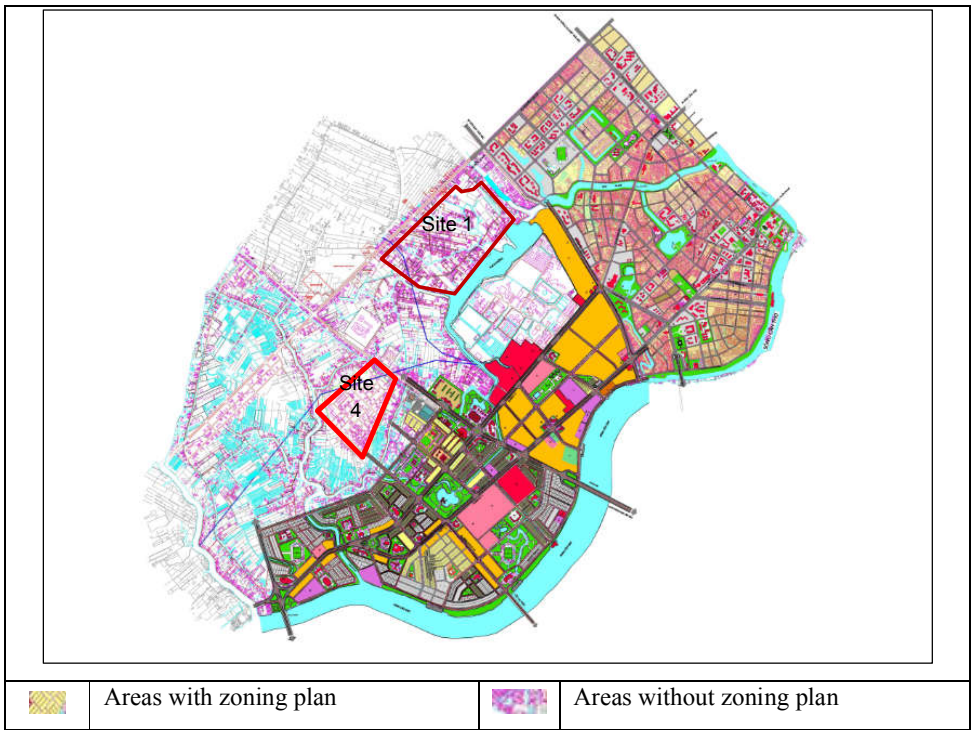
Source: CAPI, 2014

Figure 43: Map of the approved detailed plans within the city central area



Source: CAPI, 2014

Figure 44: Map of the approved zoning plans within the city central area



Source: CAPI, 2014

- *Planning with a weak professional team*

Although I graduated as a project architect, I used to work in urban planning field for several years at the CAPI. Before coming to Heriot-Watt University (HWU), my understanding on urban planning leant heavily on the technical aspects of making a plan. Like many other architects practicing urban planning in Vietnam, I spent most of my time working with drawings and designs. When I came to HWU, I realized that the most important aspects of urban planning are not the technical issues but the social ones, and you could not deliver a good plan without considering and understanding the social issues that involve in the plan and future development, despite how splendid your drawing is. Actually, sociology and social science and research related to urban studies are all new subjects in the VMDR. Only Can Tho University, the biggest university in the VMDR, has established a Sociology Department since 2013 with very few members with only one PhD who just graduated abroad. So, it implies that the concern and investment in urban studies is rather low and officials and professionals involved in planning and housing development do not have much awareness or show much interest in social issues and how it affects the community in a plan for development.

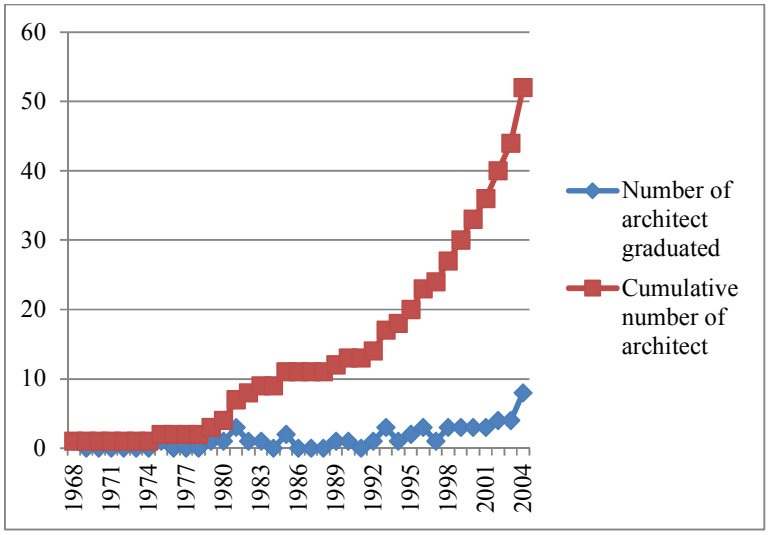
During my job as an architect and 'urban planner' at the CAPI, I had a chance to work with some residential development projects, from which experience I widened my understanding in housing and housing development in Vietnam and Can Tho city. I learnt the process of 'making' a 'plan' which meets all the requirements of the local authorities. In the very first years of my career, as a newly employed planner, I learnt from the senior colleagues who also graduated as project architects many things, such as how to 'draw' a plan, how to deal with planning code and regulations, how to make presentations to local authorities and communities. However, the process that we used to make plans relied heavily on the design and engineering aspects of a plan, with little concern on social problems such as where local people will be relocated, how much compensation they will get and how can they live without their farmland. All I have to do is make the zoning map, create some building code and a road network for the plan site. The other maps such as water supply, drainage and power supply network would be designed by the other civil engineers.

In Vietnam, only the two main biggest cities, Hanoi and HCMC have the Departments of Urban Planning and Architecture (DoUPAs), which are working

separately from the Departments of Construction (DoCs). Other cities only have the DoCs, which are in charge of everything relating to construction including urban planning and urban management in the cities. In urban management, there are two levels of authority, the city level authority (the DoC) and the district level authority (the District Urban Management Unit-DUMU). At the time this research took place, the number of officials who are in charge of urban management at the Can Tho DoC is just eight people, which is composed of three architects who graduated in architecture design and five other civil engineers. There is no expert in urban planning or urban management field. The situation also happens with the lower level DUMU with the staff quality and quantity even lower. So, the relatively thin professional base of the personnel in urban planning and management makes it difficult to manage the development and construction in the city. This difficulty is exacerbated by the insufficiency of tools for managing the development, such as plans and regulations. This problem will be discussed further through the interviews with local officials in chapter six and seven.

Figure 45 shows the number of professional involving in architecture and planning activities in Can Tho city in the past few decades. We can see, before 1992 there were less than fifteen architects in the city and just one or two of them involved in city planning and management. However, since 2001 the cumulative number of professionals increased to over 40 people and there were more professionals assigned to the urban planning management staff of the Can Tho DoC.

Figure 45: Number of professional in architecture and planning in CTC



Source: VUPDA, 2014

- *The role of urban planning in self-help housing development*

Attempts to plan the development of cities in modernizing countries and to improve housing standards are often confounded by the autonomous action of low-income squatters and clandestine developers (Turner, 1968). In recent years, in the process of urbanization there is a strong growth in housing development in Vietnamese cities. Currently, in urban areas, the role of local government in managing and solving the informal construction activities, especially the separate housing mostly based on the drawings from the plans that have been approved. However, the covering level of these maps is usually low, especially with the detailed-level planning. Most of the big cities in Vietnam currently have a master plan but most of them were made just in recent year about after the year 2000, and before that few of them had a plan which was usually with low feasibility. For example, the first master plan for Can Tho city has just been made in 2006 and was revised in 2013 with almost a different plan. And even with the new revised plan which was made with the support of a foreign consultant from Belgium also in the low feasibility to implement in the real life which is too far exceed the ability of the city. The ideas of new urban areas, new city administration area, green axis for both transportation and landscape, the rail lines or high-speed motorways end up only on the drawing. However, this master plan is the only basement for the other zoning plans and detail plans for city development which would be used for managing and approving planning permission or building permission. Thus, in the period waiting for making and approving these plans, the local government has very little tools to do their job. They could only base on the old drawings that been approved many years ago, which were out of date and not feasible at all. And there are many urban areas do not cover by any zoning or detail plan for a long period which was usually called 'white plan area'. Besides that, within the other areas which have zoning plans, the local government just only 'manages' the area that under public developments such as road, school, park and do not allow people to build permanent building but temporary house. And for the residential areas, the government has had to give permission for people to build their own houses despite the pattern of the current land plot. So, this is one of the main causes of the spontaneous residential areas which were built up by local resident, by dividing their land and build up inner roads and their own houses.

It is necessary to make clear that although these residential development areas are chaotic but mostly legal or legalized and many of them have the legal titles for their land

and house. So, the government could earn some tax from land and housing. They also try their best to supply essential infrastructures such as electricity supply, water supply and telecommunications to people in those spontaneous residential areas. In contrast, some other households are not so lucky because their land or house is located in the planning area which is not residential land such as roads, parks, etc. Although over the years but the government still do not have enough financial ability to implement these projects and keep limiting people's right to build but provide a solution by giving 'temporary' construction permit which is usually allow people to build up to two-storey house.

And in fact, in recent years the local government has to constantly review, adjust or even cancelled several planning projects and the project is not feasible to return the land to the people, or rather the full restoration of the rights of the people to their land. This practice, of course, has been supported many supporters especially the households within the projects. However, it also creates sceptical psychology on the possibility of implementation of the plan and other projects that have been or will be approved in the future. It also makes other people in the hope this situation will happen to them and create psychological uncooperative with investors or governments.

Despite the overall picture of housing development in urban areas was generally quite messy and seemed mostly illegal. But the truth is not so, most of which are legal or has been legalized and granted full titles, and very few are in the cases of sanction or coercive dismantling. Thus, the local authorities have accepted the way of this development at least in the present and near future. More specifically, the government and most of the people have chosen to solve the housing problem mainly by the solution "housing by people" rather than "housing for people" in which the state is trying to build a more civilized and modern city in the future like the other developed countries.

5.5 Conclusion

This chapter has explored the secondary data related to housing and urban developments in Vietnam in the past few decades. It revealed that although Can Tho is the biggest city in the VMDR but has the characteristics of a rural-city with lower household size than the average of urban areas in Vietnam, low population growth, higher percentage of semi-permanent house and separate house than the average of the whole country urban.

The urban form of the Can Tho city's development has also been discussed. It was found that the natural land pattern of the VMDR with low wet land and highly interlaced waterway system play an important role in shaping the urban form and housing pattern in the region including the Can Tho city. As the city has been developed spontaneously for many years with little plan and with the limitation of local government in infrastructure investment, housing patterns in Can Tho city were quite dense in the city core (urban areas) but scattered at the outskirt (rural areas) as people relied much on the waterway system for agriculture and transportation purposes. So, there was an inadequate in infrastructure across the city, especially the roads, clean water supply and sewerage thus could lead to some problems such as environmental pollution and poor public health. Besides that, poor public facilities such as parks and children playgrounds is a common problem of the cities of VMDR in both of the formal and informal neighbourhoods.

The chapter also discussed the limitations of the current planning system in Vietnam and the capabilities of the professional workforce in urban planning and management. These limitations have contributed to the arguably inefficient and ineffective urban and housing development and control in Vietnamese cities in the past few decades. On one hand, they have not been effective at exerting control, or ensuring orderly development linked to infrastructure. On the other hand, because of the ease of informal development, the system has been quite 'efficient' at producing a lot of 'affordable' housing. Therefore, this chapter has contributed to answering parts of the first and second research questions.

CHAPTER 6: HOUSING DEVELOPMENT PROCESS AND THE ROLES OF STAKEHOLDERS

6.1 Introduction

Today many people in developing countries are still living in informal settlements. Urban informal settlements are typically defined as a group of dwellings where the families are illegally occupying the land on which they are settled, where there is no formal layout plan and the land is either un-serviced or minimally serviced (Abbott and Douglas, 2003). Huchzermeyer (2009) also said that informal settlements are settlements of the poor that result from unauthorised occupation of land and usually with non-adherence to land use and building regulations. It was estimated that around one billion of people in the world are housed in such 'slums' and that this could be double in three decades (UN-Habitat, 2003).

However, in the Vietnamese housing context, there is not such a clear distinction between informal and formal housing, and there is also considerable room for upgrading from informal into formal housing with full legal status. Moreover, the definition of informal settlements in Vietnam could be extended to other groups of migrants staying in private rental housing or hostels for long period of time without official registration to the local authorities and the legal status of household book '*hộ khẩu*'. These people could come from the rural areas or other cities and most of them are seeking for better jobs or higher income in the new places.

There are many research studies on the housing conditions, legal and environmental issues of informal housing (UN-Habitat, 2003). Some other studies focus on slum upgrading processes and how slum dwellers can succeed in leaving slum settlement (Lall et al., 2006). But few studies focus on the mechanism of the housing development and the relationship between these two kinds of housing in developing countries.

This chapter will discuss the two approaches in urban development in Vietnam and the role of stakeholders in those processes. First, it discusses the nature of property ownership in Vietnam, including land ownership and housing ownership. Second, it will discuss the housing supply and demand in the transition economy of Vietnam. Third, the detailed processes of the two housing development approaches will be discussed. Fourth,

the housing land supply and the role of informal property markets in Vietnam will be explored. And finally, the balance between formal and informal housing will be discussed and followed by a conclusion of the chapter.

The main sources of evidence for analysis in this chapter are data from the field survey in late 2014 and early 2015 including: interviews with some government officials, property developers and homeowners; local government documents, reports and technical drawings; and historical satellite images of the development sites.

6.2 Nature of property ownership in Vietnam

- *Land ownership*

This first section will explore some main characteristics of the Vietnamese legislation on property ownership. The first part will focus on land ownership by looking at the laws on land and the second part will focus on the building ownership, including housing, by exploring the laws on housing

The Vietnamese land legislation system is quite complicated and subject periodic change along with the development of the country, but it can be summed up in one phrase 'No one owns land but everyone, and most households have some land to use'. Khanh (2013) explores the processes of perceptual change and policy making with regard to the adoption of land ownership and land use rights under the leadership of the VCP since 1954 in the North and since 1975 for the whole country. The 1980 Constitution indicates that land belongs to the whole people. It means every Vietnamese citizen is involved in the land ownership. Since then, in a period of only twenty-five years, four versions of Land Law were issued and several changes and additions to these Laws were adopted. This shows the complexity and incompleteness of the Vietnamese legislation system on land in the transition toward a market economy.

Soon after the economic renovation in 1986, the first Land Law was established in 1988 with three major rights on land: ownership right, managing right and using right. In this Law, land is owned by the whole people, managed by the government and the user has the land use right. However, this Land Law does not allow land transfer (Khanh, 2013).

In 1993, the second Land Law was adopted with some modification in the managing and using of land, which allow the land user, especially farmers, to use their land for the long term in stability. People also have the right to rent out, transfer or inherit their use right.

The third Land Law, which was adopted in 2003, set out two type of land revocation (i.e. return to state ownership): compulsory and voluntary. Before this land law, the only type of land revocation was the compulsory revocation, in which the government has the right to take back the land from original users in order to use for new development, including allocating land for public and private real estate developers. This revocation process is based on the 'Land Price Frame', a set of valuations which is issued by local government. The land price in these frames is always much lower than the market price, and this caused much conflict and complaint from the original land users.

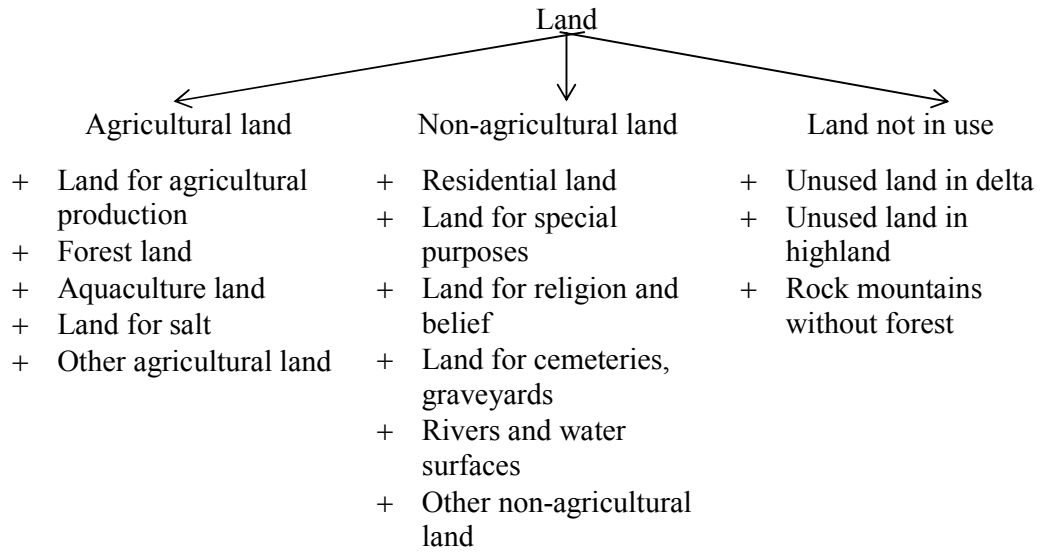
The most recent law on land is the 2013 Land Law, which continues to adopt the Land Price Frame but clarifies the detailed regulation on land revocation cases where land is used for public and national purposes such as building road and public facilities, but not including private commercial housing. However, up to now, the Vietnamese legislation still does not admit the 'private ownership right' or 'private ownership' on land (Khanh, 2013). So, land use right is the only thing that represents the ownership by people of land. In the last twenty years, land use right certificates have been allocated to different groups of people including individuals, households, and other political and religious organizations (see Figure 47). This model has some similarity with Chinese land system, where land use rights are what are sold initially by local/public authorities and then traded, usually as long leases. But this is totally different from other capitalist countries, such as the UK, where land use rights are conferred by planning decisions (including allocations/zoning or planning permission), and apply regardless of ownership of the land.

So, we could see that in Vietnam the term 'whole people ownership' is quite vague, although it was defined in the 2003 Land Laws with the representative organization for the 'whole people', which includes the National Assembly, the Government and different level of People's Council and People's Committee. The representative right for land ownership and land management is assigned to the People's Committee. However, there are many different governmental levels including: province,

city, town, district and commune, and the lack of a mechanism in managing and supervising the land management task could lead to some individual or group taking illegal advantages on land (Khanh, 2013).

Figure 46 shows the different types of land in Vietnam that are grouped into three main categories: agricultural land; non-agricultural land; and land not in use. In recent years, there has been a significant amount of land that was changed from agricultural land to non-agricultural land for the purpose of urban development in Vietnam. In housing development, most of the residential land was supplied from the change of land for agricultural production. We will discuss more on the process of applying for changing the land use purposes in the following sections of this chapter.

Figure 46: Categories of land in Vietnam



Source: MoNRE, 2014

Figure 47: Land tenure and ownership in Vietnam

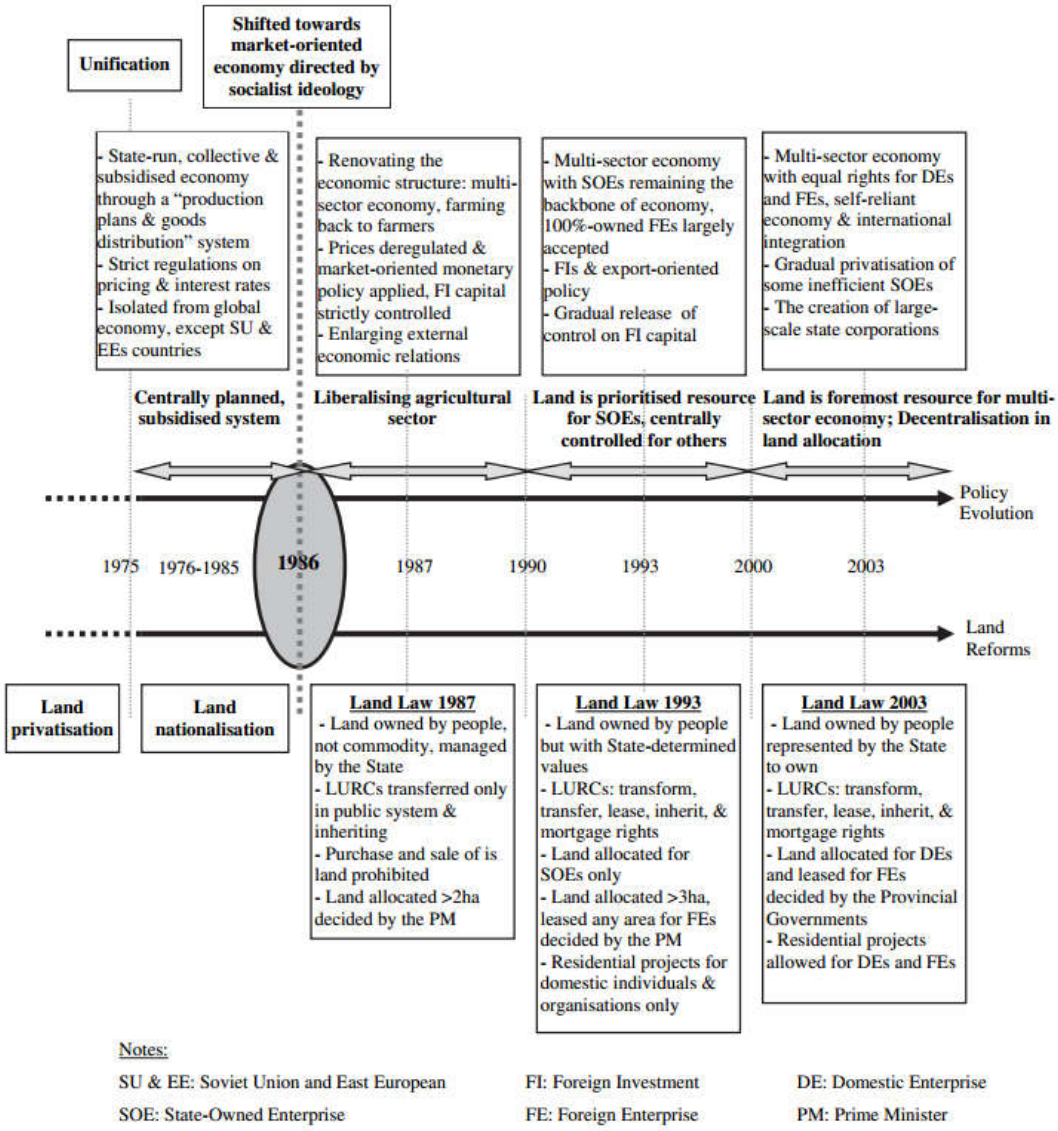
Source: MoNRE, 2014

In the most recent 2013 Land Law, land is still owned by the whole people which is represented and totally managed by the State, and the State gives the land use right to the land users (VNA, 2013). There are many types of land users as indicated in Figure 47. In this Land Law, the term 'land use planning' is understood as 'allocating and zoning of land in spatial use for social-economic development, defense and security, environmental protection and climate change adaptation goals on the basis of land potential and land use needs of the sectors for each social-economic regions and administrative units in a determined time period'. It also defines 'land use plan' as 'the distribution of land use planning in time to perform within the land use planning period'.

So, the understanding of land use planning is quite simple: it is the allocation of land within a certain period of time in terms of a specific schedule of uses. That is the reason why in this Law the term 'land use plan map' is understood as 'the map that is set out at the beginning of the planning term, which shows the allocation of land at the end of that term'. Normally the term for each land use plan is five or ten years. So, we can see why the feasibility of land use planning is low and in practice most of those plans usually failed within their 'terms'.

The following figure describes the revolution of land policy in Vietnam after the unification in 1975 until 2003 when the Land law 2003 paved the way for the land and housing market in Vietnam as residential development projects were allowed to both domestic and foreign developers.

Figure 48: The evolution of land reform policy in Vietnam



Source: (Thien Thu and Perera, 2011b)

- *Housing ownership*

In this second section, housing legislation will be briefly discussed. In contrast with the situation with land, private housing ownership is largely admitted by the Vietnamese legislation. However, the housing title system, which was called the 'old pink paper' (for the house only), has only been adopted since 1994. At that time, the Ministry of Construction was in charge of managing and issuing the housing title for both public and private building owners, until the Land Law 2003 when the 'new pink paper' has

been approved. This aimed to integrate the ‘red paper’ for the land and ‘old pink paper’ for the house into one paper, under the management of the Ministry of Natural Resource and Environment (MoNRE).

In practice, before the Land Law 2003, relatively few people applied for and had land title for both agricultural and residential land. However, in just ten years after 2003, the local governments across the country have issued over 41.6 million first time land use right certificates (LURCs) which cover 22.9 million hectares of land, which equates to 94.8 percent of the total land in use (MoNRE, 2014). This result has paved the way for managing and taxing the land. It also promotes the establishment and running of the formal property market.

In the Law of housing 2014, housing is described as a construction/building for dwelling purpose and for other activities of households and individuals, while a housing development project is an integration of proposals regarding using capital resources for developing new homes and other infrastructures for dwelling purposes. Housing development and housing projects have substantially solved the housing demand of Vietnamese people, helped developing the national infrastructure, and improved the land use value. However, in order to deliver a sustainable housing development and secure the housing quality, the Vietnamese law makers have made some regulations in housing development schemes.

There are two types of housing development: housing development by project, and housing development by household or individual. So, house building could be done by individuals themselves or by the housing developers (estate companies) through request for establishing the housing project. Both of these two housing development schemes are legalized by the laws. In the Law of housing, there is no regulation on individual housing development, but it provides the regulations for housing development projects and the responsibilities of stakeholders in the development process. One of the most important things is that a housing development project is only made, approved and built in an area that already had the detailed plan approved by the local government, and the developer must follow the content of the investment permit from the authorities.

6.3 Housing supply and demand in the transition economy

As indicated earlier, this research analyses the process of urban housing development in VMDR and the role of the stakeholders, including householders, the public or private agents in construction, and the local government in urban planning and development in Vietnam. A central theme of the study is the contrast between two approaches to development which can be identified, the formal and the informal. The evolution of these two kinds of development can be likened to a 'race', and the following part of this chapter describes that 'race' in housing development in Vietnamese cities in recent years. This phenomenon takes place in both the urban fringe and also the inner urban areas.

- *The two opponents*

The first competitor in this race is the '*civic group',* including individual owners (or would-be owners) of land with their individual housing demands (this both includes the informal and semi-formal housing developments). The other competitor is the '*business group'* of public or private property developer (formal housing development).

The site for this 'race' is usually located in the urban fringe or void areas in the Vietnamese city, in which most of the land is currently being used for agricultural purposes but is proposed to be used for urban residential areas in the master plan.

- *Advantages and disadvantages of the' civic group'*

Many households in Vietnamese cities such as Can Tho have ownership ('use right') of plots of land with potential for building a home on, either derived from their or their family's previous agricultural activities, or which they have purchased from others. The owners of informal housing sometime do not fully acknowledge the legal status of their houses, and they often think that they always have the right to build their house on their land, despite the regulations from the local government. Starting from the need for permanent housing, some individuals are willing to pay a large amount of money, relative to their income, or even to get a loan from other people or from a bank, to build houses on their land plots, despite the related risks. One of the reasons for this informal build is that the local government has maintained the opportunity for retrospective formalising the status of this initially informal housing. A further reason is that, as will be explained

and evidenced later on, the cost of building a home by this means may be significantly lower than the cost of the formal route.

- *Advantages and disadvantages of the 'business group'*

In recent years, the application of the land price frame in urban areas has led to many consequences, including the persistence of the two-price system in the property market in Vietnam (Thien Thu and Perera, 2011a). With this two-price system, the property developers could foresee the ability to gain benefit through urban development projects, and housing projects in particular. Once they have got the investment permission from the local government, the profit would be expected to come mostly from the gap between the two prices at the input and output of the project. Input land for development is usually agricultural land, which is compensated at a price which is many times lower than the residential land at the output of the project. This profit is enhanced by the two-price system, since the gap between the state's framed price and the actual market price is substantial and growing.

Although the developer's financial ability may be limited, they usually prefer bigger projects, which could give them access to as much land as much as possible (at low acquisition cost). However, their projects' scale usually exceeds their actual financial abilities. Consequently, they have to take steps to survive in business, such as: applying for extending the project life, selling land before finishing the infrastructure, or transferring part of project to secondary developer. This pattern of behaviour from the developers can result in many project delays and changes in the urban housing projects in Can Tho city, which can easily be seen and has been called '*leopard skin*' development.

Moreover, the lack of a particular target for the output of those housing developments also intensifies the project delay. In the context of a low population growth (as discussed in Chapter 4), with mostly low- and middle-income migrants, and a similar profile for the existing population, it is not surprising that demand for higher priced formal housing is limited. Furthermore, most of the urban residents have helped to house themselves over many years through the self-help housing approach, so it is obvious that the real demand for new housing in Can Tho city is not as high as the developers expected; and this demand mostly comes from the low and lower middle-income groups, who have limited affordability capacity.

This situation has pushed the developers to seek a market for the output of their products by other channels, such as: wholesale disposal or sale to other individuals who want to invest their money for profit through land value asset appreciation regardless of housing demand. In other words, these buyers do not intend to build a house in that land plot, since they have built their own house years before. So, we can see that many large formal urban residential areas have full infrastructure but few houses and few residents living there, comparing to the total planned number of housing plots.

However, in reality, most of the land plots are owned by individuals and could be transferred many times between individuals, not only city residents but also people from other cities in the country. Some households decide to build houses and live in these areas in order to improve their living condition and environment, and they may let out their previous places in the city centre. The above problem was the reason for the issue of the Decree 181 (Go-VN, 2004), which forbid developers from selling land plots to buyers without a house, or at least an un-finished house (or raw house), in order to try to stop the delays and inefficient/wasteful land use.

In fact, the land plot selling system is arguably working well and also contributing to the diversity in housing development. The problem is that there is a lack of a master plan for development and a detailed regulation for stakeholders which is based on the actual demand of the market and what happening is the result of the spontaneous and out of control development.

- *The progress of the race*

Before the '*Đổi mới*' reforms and especially the adoption of the Land Law 1993, the State was in charge of supplying housing for its work force, and other citizens renovated their living places by themselves. The property market did not exist at this stage.

The race had actually started when the new land policy and investment policy had been adopted in the field of property development in 2003. The permissions for the development of new urban residential areas were rapidly issued to make a big momentum for urban development. At this stage, most of the stakeholders involved in the development process were facing trouble. The developers do not care much about where people would be relocated when being evicted from their land, and the local government

has the same issue with their own public projects, while evicted people do not often have a plan for their future after taking the money from the refund, which they never think about and let it goes with the rule of life and market.

When the stakeholders do not share a common objective, and the interests of other parties were not accounted for, that could be a reason for the apparent 'failure' of the housing development projects in Vietnam and Can Tho city in particular. Arguably this set of contradictory objectives has existed for many years and has caused some discomfort in the community, especially among the people who have land in the area which is going to be developed. And one important consequence is the decreasing level of public trust in other developments in the future.

- *Role and effect of urban form and urban planning*

The urban form of the VMDR cities depends heavily on the natural topography, in which the spreading system of rivers and channels is major feature. This water system plays an important role and brings huge benefit for transportation and water supply. Moreover, it also poses a big challenge in solving the problem of inundation in the context of CC and SLR in Vietnam. In addition, another important factor to take into account is that the historical land form for agriculture purposes has shaped the urban housing form of the cities in VMDR. In the situation of a developing country with limited resources, the development policy which is based on renovating and upgrading the existing infrastructure incrementally is attractive, and possibly inevitable, although this may yield short-term benefits while neglecting a long-term view on the most desirable form for urban and housing development in VMDR cities.

- *Role of the local government*

Through the above description, we can see the gap between the housing development policy and reality in Vietnam. Under current policy, it is clear that the State has been encouraging 'business', especially private companies investing money in property development projects. In that process, some weaknesses have been identified, and the local government should make some suitable modification, for example by taking back some delayed projects or cancelling some urban plans which are not feasible at the moment. However, these actions just solve some particular issues and projects, but do not address the more fundamental problem, which is that development should be based on a

feasible and transparent plan which could balance the requirement of the stakeholders, especially the most vulnerable groups and also the mainstream majority of low-middle-income households.

This section explores how and why local people and business were rushing in taking control of the city land, which is the most important element in housing development, which will be discussed further in the next parts of this dissertation. These analyses contribute to the recommendations on land and housing policy in the final chapter of this dissertation. In which, the Vietnamese government should improve the property valuation system, the mechanisms on revoking land from individual, household and organization, and also the mechanism on appointing land to the property developer through bidding, for example. Besides that, local government must improve the mechanism on managing the land use right transaction. That process could resolve the negative impact of the current two price system on land in Vietnam.

6.4 Housing development and types of residential projects

- *Categories of newly developed residential area*

Based on the different approaches described above, newly developed residential areas in Vietnamese cities, and Can Tho city specifically, could be categorized into four types as follows, based on the nature and functional characteristic of the development:

1. *Spontaneous Residential Area (Khu dân cư tự phát-SRA)*

This residential area could be seen as '*spontaneous self-help'* development scheme (see Harms (1992)). Harms (1992) had defined this type of self-help housing as below:

> *"Spontaneous self-help, the process begins mostly with illegal land acquisition, and continues with different phases of construction from initially precarious materials for a hut to more permanent materials and more space. This process is self-initiated by the users, often well organized and supported within the family and neighbourhood network"*

In Vietnam, however, not all of the land plots in SRA are illegal, many of the households might have had legitimate use rights as agricultural occupiers, or have bought such rights from previous farmers. Another form of self-help housing as defined by

Harms (1992) is *upgrading programmes* which was also applied in the Can Tho city but not included in the study areas of this research, because it was only used for the urban core areas which has been developed over decades. However, for some people in the city, including residents and officials, it could be used as a solution for improving the living condition of the new spontaneous areas in the coming years when the infrastructure and environment becomes worse. The following definition of Harms (1992) could be considered for a better understanding and comparison of self-help housing variations:

> *"Upgrading programmes, initiated by the state, the municipality or international agencies. These support the existing housing situations of low-income people, often called squatter areas. The support occurs in the context of a policy and is implemented by planning, technical assistance, infrastructure provision and resource provision from outside the area and outside the family and neighbourhood network"*

2. *Relocation Area or Resettlement Area (Khu tái định cư-RA)*

This relocation area could be understood as a '*sites-and-services'* development scheme (see Harms (1992)). As most of these projects just provide land plot for people and let them build a house themselves, with very little or no financial support. Most people use the compensation money to pay for the land and housing construction. This housing scheme will be discussed more in chapter 7.

> *"Sites-and-services programmes, or similar state or internationally initiated programmes with a high level of administrative organization, where building sites are provided and sometimes rudimentary core housing, like a room and a sanitation unit, are built by contractors and left to be continued by the users themselves, either in organized groups or by the individual household"*

3. *Residential and Relocation Area (Khu dân cư và tái định cư-RRA)*

This type of residential area is a mixture of both purposes. Usually, the core or original purpose for development of these areas is for resettling people from the other public development projects such as road, school or hospital. The other part of the land is used for commercial housing purposes or sometime including the spontaneous housing attach to this core area to make use of the infrastructure.

4. New Urban Residential Area (Khu dân cư đô thị mới-NURA)

This residential area is newly and formally developed by property developer for commercial purpose. Most of the developers for these housing projects are private companies and some state-owned companies participate in urban and housing development.

- *Spontaneous housing and rental housing for low-income people*

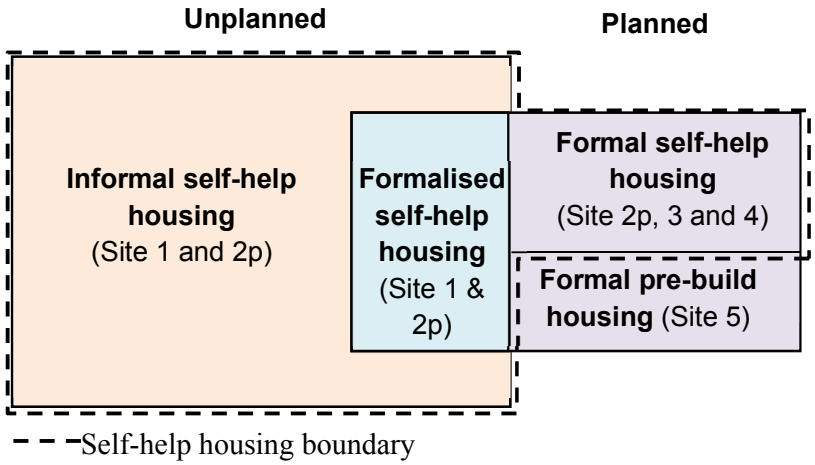
According to the head of the department of construction of Can Tho city, the main reasons for the spontaneous housing development in the city in recent years are because of: the low propensity of the residents to obey the law and regulations in housing development; and the inadequate number of staff in supervising and managing the construction activities in such a big city like Can Tho.

Especially, in the past few years, the number of migrant has increased due to the growth of the city economy. Most of them are workers in the industrial zones, public and private companies in Can Tho city. For example, in the Binh Thuy district alone, where the Tra Noc industrial zone locates, there are more than 32,000 workers for the manufacturing and food processing companies. The high demand for housing for these people leads to the growth in rental housing, which is usually called '*nha tro*'. '*Nha tro*' or '*phong tro*' is a kind of room for rent which is usually from 10 to 20 square meters and is built in row like a barrack. Such a kind of housing has been built in a low level of structure and finishing material as the landlord wants to maximize the profit and reach the break event point as soon as possible. It's also because of the need of the tenant for low cost housing due to their low-income.

- *Types of self-help housing in Vietnamese city*

In general, there are two main types of self-help housing in Vietnamese cities: formal (planned) and informal (unplanned) self-help (see Figure 49). Formal self-help housing could be categorized into two types: commercial and subsidized self-help. Yet, all of these self-help houses are built by owners but with difference in land suppliers. The land for commercial self-help housing is provided by real estate developer, while local authority supplies the land for subsidised self-help housing as a tool for relocating urban resident from public projects, and spontaneous self-help land is from households (see Table 19). Table 20 describes the main characteristics of the five research sites.

Figure 49: Housing system and the dominant of self-help housing in Vietnam



Source: Author, 2014

Table 19: Types of self-help housing

Type of self-help housing	Land supplied by	House built by
Commercial self-help housing (Site 4)	Real estate developer (public or private)	Household
Subsidized self-help housing (Site 2 and 3)	Local authority	Household
Spontaneous self-help housing (Site 1 and 2)	Household	Household

Source: Author, 2015

Table 20: Steps and responsible agents in the development process

	Site 1 An Khanh SRA	Site 2 An Binh RRA	Site 3 Thoi Nhut RA	Site 4 91B NURA	Site 5 Phu An NURA
Planning permission	-	x	x	x	x
Detail planning 1/500	-	*	*	*	*
Property refund	-	x	x	+	+
Evacuation	-	x	x	+	+
Land fill	•	*	*	*	*
Road build	*	*	*	*	+
Other infrastructure build	*	*	*	*	*
Housing build	•	•	•	•	+

Note: -: none; +: by developer; •: by householder; x: by local government; *: by hired consultant or contractor. *Source*: Author survey, 2014

6.5 Two approaches of housing development in Vietnam - illustration

This section focuses on the changing in urban land use structure and housing development in Vietnam using a particular case study in An Khanh ward, Can Tho city. As mentioned earlier, the purpose of this study is to highlight the contrasts between the two approaches of the existing urban housing development in Vietnam in order to better understanding the current mechanism of urban housing need and supply and the implication of local government policy on housing development in Vietnam.

+ Planned residential area: houses are developed by a private developer or government organization with an approved detail planning. (*Top-down approach)*

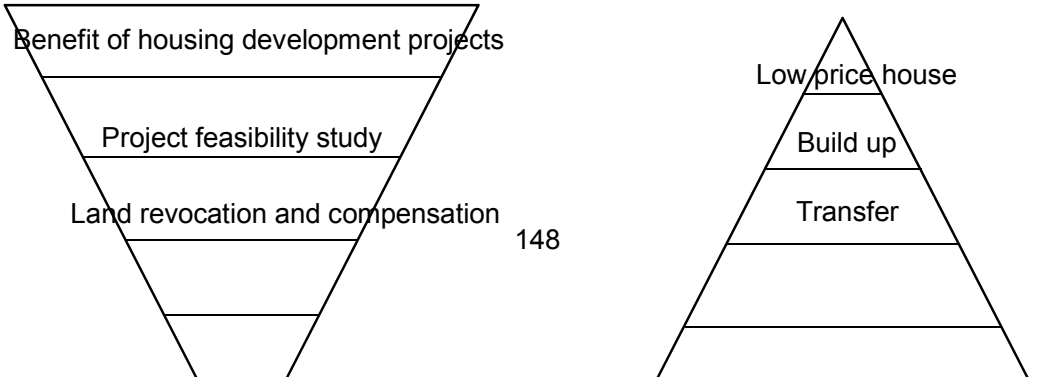
+ Unplanned residential area (also called spontaneous housing or self-develop housing): houses were developed by individual owners and without a detail planning. *(Bottom-up approach)*

Figure 50: Types of house in the study areas

Unplanned-housing	*Planned-housing*
	

Source: Author survey, 2014

Figure 51: Top-down and bottom-up approaches



Build up infrastructure	Plot divide
Market and intermediate level	Land use change
High price house	Demand of low price housing

Source: Author, 2014

Data for this study including cadastral maps and plans from the local authority, and also Google Earth historical satellite images from 2003 to 2009. These maps and images are used for investigating changes and analysing the differences and relations between the two kinds of developments and also the roles they play in the general urban development context.

Under the effect of urbanisation, the urban housing need is increasing in Vietnamese cities in recent years. There are two major sources of housing supply which can be classified in two opposite approaches: top-down and bottom up approach (Figure 51). The following sections discusses in detailed these two approaches in urban housing development in Vietnam in recent years.

- *Top-down or formal (planned) approach*

This refers to New Urban Areas including New Residential Areas which are usually planned and developed by private developers. The preferred locations are usually areas covered mostly by agricultural land with little buildings and infrastructure on them.

This approach (refer to Figure 52) usually starts with a general zoning plan of the whole urban area. In the first stage, the state will approve a developer for investing in a particular urban development area. Then, the detail plan and feasible study would be made by the developer with support from design companies. The process of planning usually takes time and consists of many steps (see Figure 53). After that all these things must be approved by the local authorities.

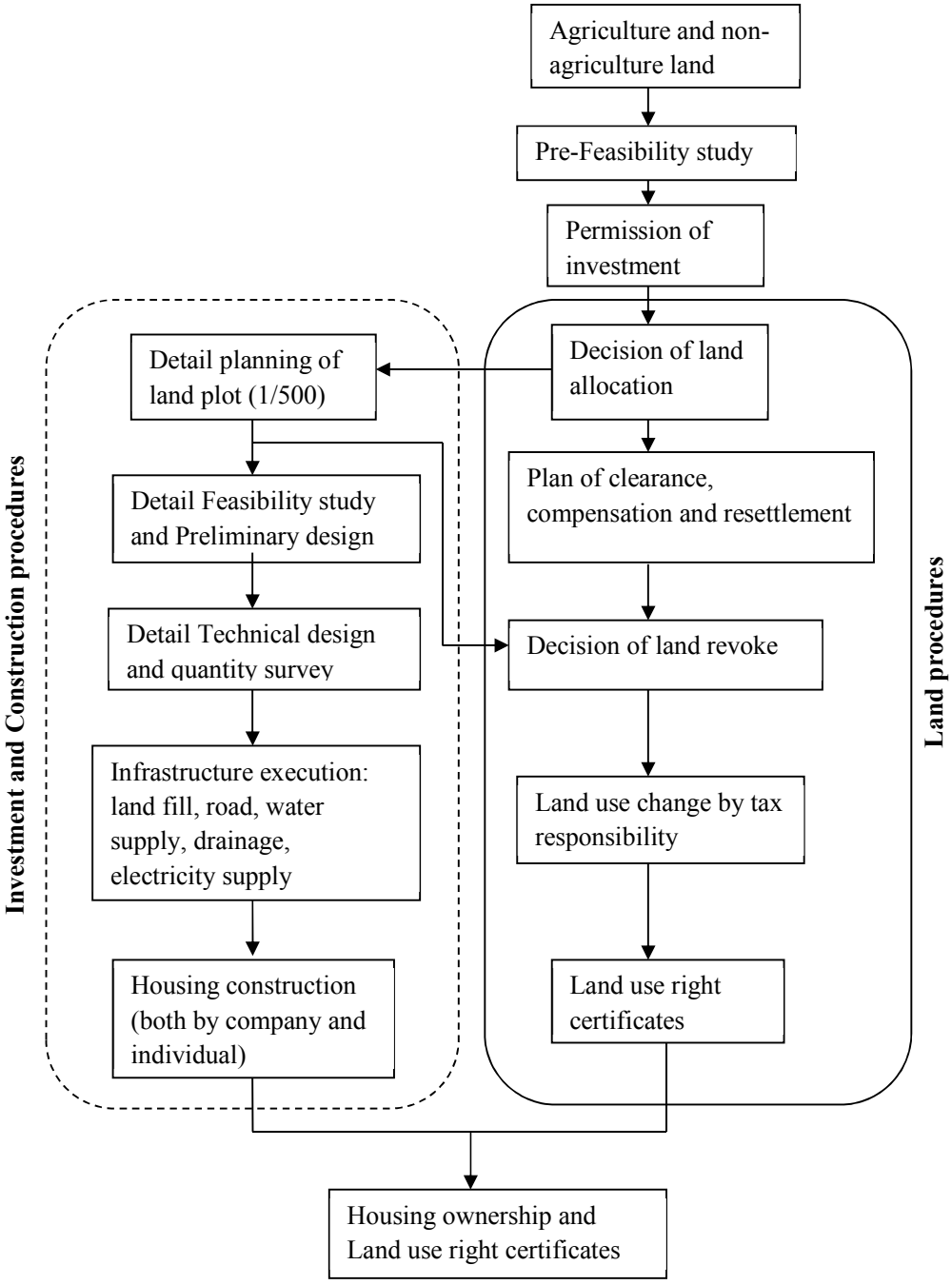
In the second stage, a compensation plan is executed to acquire ('revoke') the land from the original owners, with compensation based on price frame. With that money, they have to find their new place by themselves. Some developers also have the subsidy policy

for those people to buy land or house after the project finished, but it usually takes years so most of the original land owners are not there in the project after it is finished.

When the housing developers have obtained the land, infrastructures were built up according to the approved plan from the authority including land fill, roads, electricity, water supply and drainage, etc. After the tax process, then the new land plot was sold to the market and the new owners could build their houses by themselves.

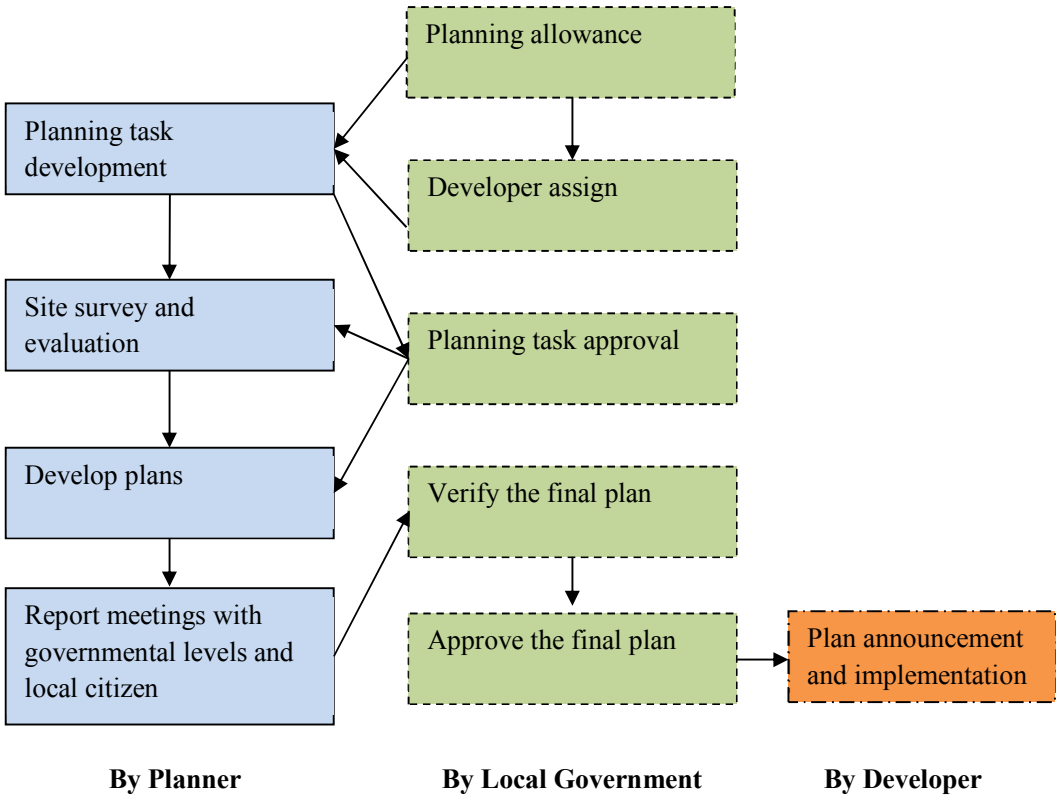
The target of this kind of housing development may be expected to be the increase in projected growth of urban population and households. However, the majority of the migrants are low-income people, so they could not afford these houses. This may explain why many housing development projects did not have been filled up with houses.

Figure 52: Housing development procedure for developers (site 3, 4 and 5)



Source: Author, 2014

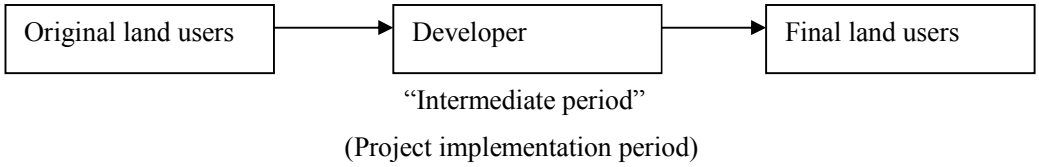
Figure 53: Detail urban planning process for typical "New Residential Area" housing project



Source: Author, 2014

This type of plan is usually called "plan for investment development". And for the renovation of core urban residential areas, the process is the same but the local government also takes the role as the developer. So, this type of plan is usually called "plan for development control".

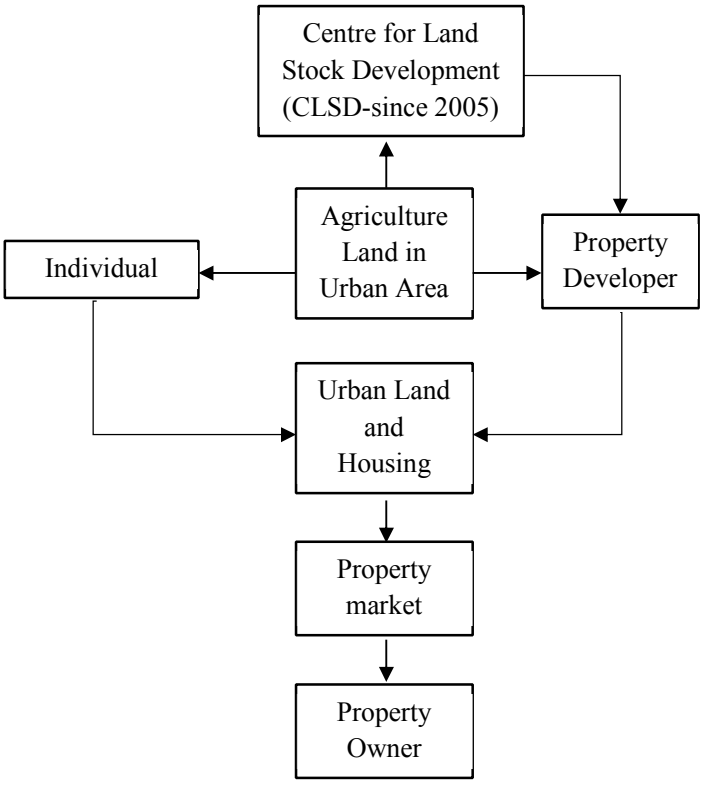
Figure 54: Land use right certifications (LURCs) change within the formal housing development project



Source: Author, 2014

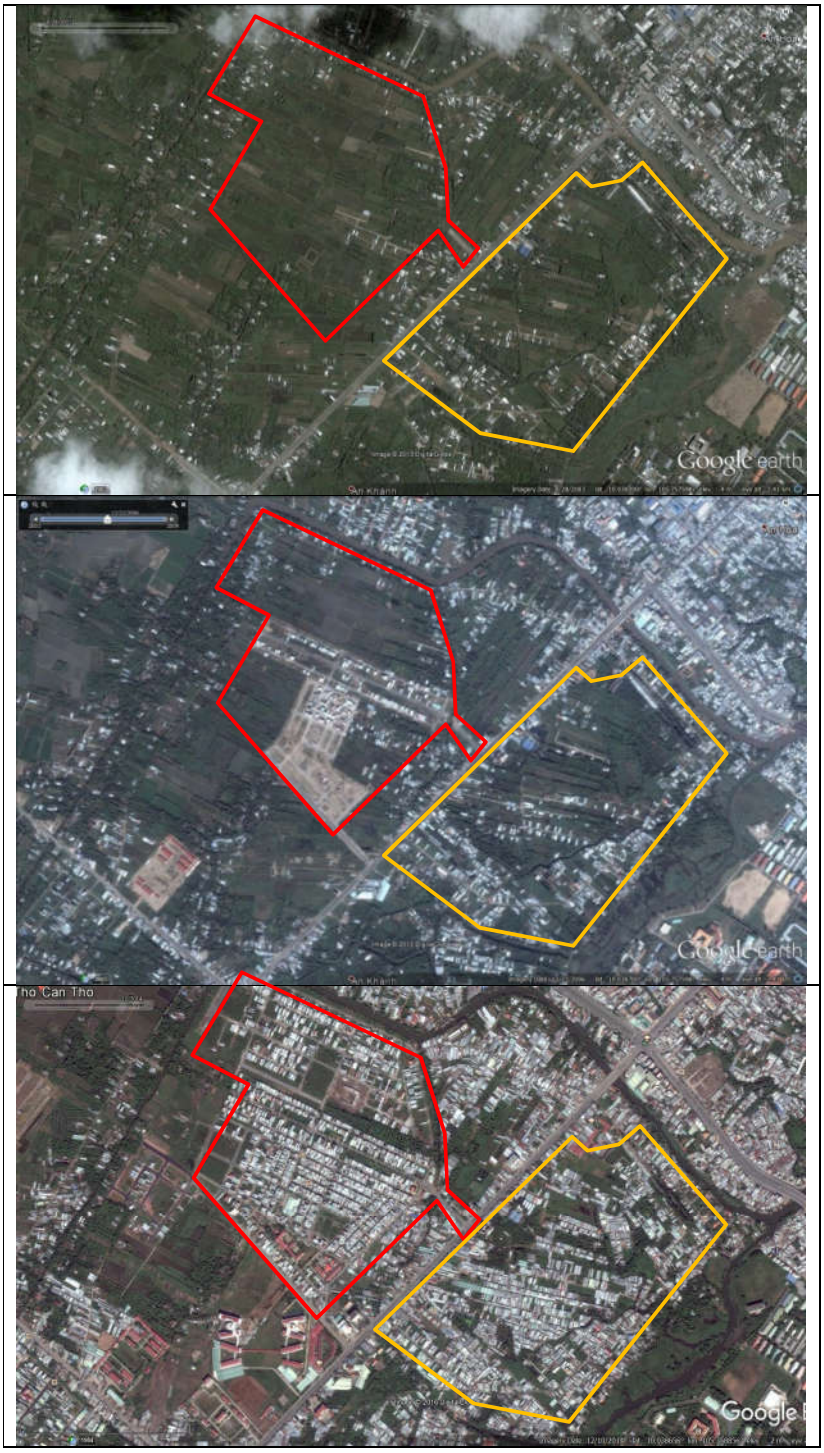
Land value will show significant change after the project was developed fully with infrastructure. Thus, it has attracted many public and private property developers in urban and housing development. Realizing the fragmentation in urban land revocations, since 2005 the Vietnam government has established the Centre for land stock development (CLSD) in every city across the country. Some of the main roles of the CLSD are: implement the compensation, support and resettlement processes for individual, household or organisation that are effected by land revocation; create the land stock for lease by auction of the land use right; transfer the land use right; develop the resettlement areas; construct the infrastructure on land; manage the revoked land; and do the services in the field of compensation and site clearance (MoNRE, 2005). This model has made some progress in supplying housing land for developers as they could have access to the 'fresh' land from auction that could save them plenty of time in land compensation and site clearance for their new housing projects.

Figure 55: Diagram of property transaction in the development process



Source: Author, 2014

Figure 56: Land use changes and housing development in site 1 (in orange) and site 3 (in red) in 2003, 2006, and 2014 (top to bottom)



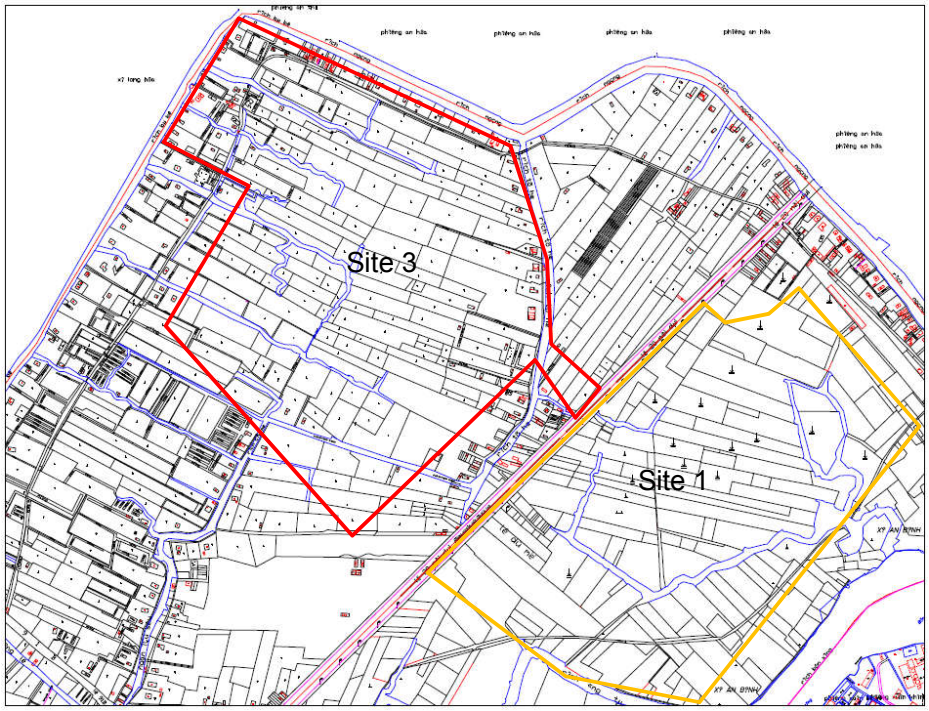
Source: Google Earth, 2014

The above figure (Figure 56) show the progress of residential development projects from 2003 to 2014.

Figure 57 and Figure 58 show the change of land use purpose and pattern of site 1 and 3 from agricultural land to residential land. Site 3 was covered by detail plan (1/500 scale) while site 1 was not (see Figure 58). In site 3 all the original agriculture was revoked and developed base on the approved plan thus made whole new land use pattern, while in site 1 housing land was developed based on the current agricultural land pattern thus produced unruled and chaotic urban pattern.

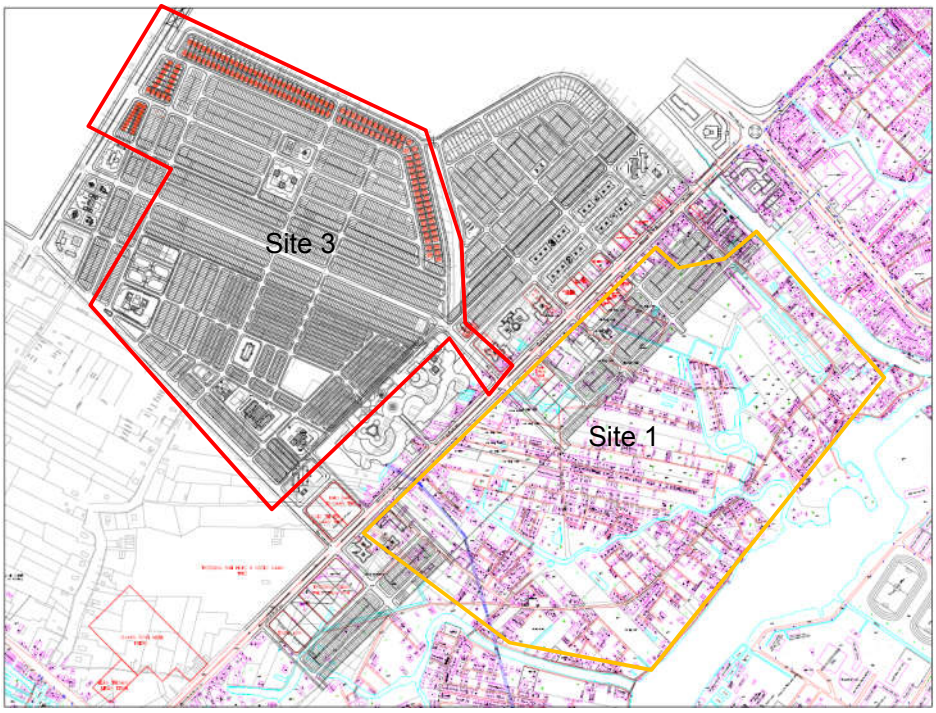
In practice, land price has shown significant change after the housing project was fully developed with infrastructure and tax responsibility. For example in the area, at the time project started the agriculture and residential land price in the government price frame are 126,000VND/m^2 and 600,000VND/m^2 respectively (Decision_11/QD-UB, 2005), but the residential land price after the project completed could be transacted around 8,000, 000VND/m^2 in the property market (Can_Tho_Online, 2013).

Figure 57: Land use pattern of site 1 and 3 from cadastral map in 1998



Source: CAPI, 2014

Figure 58: Proposed land use plan and practical development of site 1 and 3 in 2009



Source: CAPI, 2014

- *Bottom-up approach*

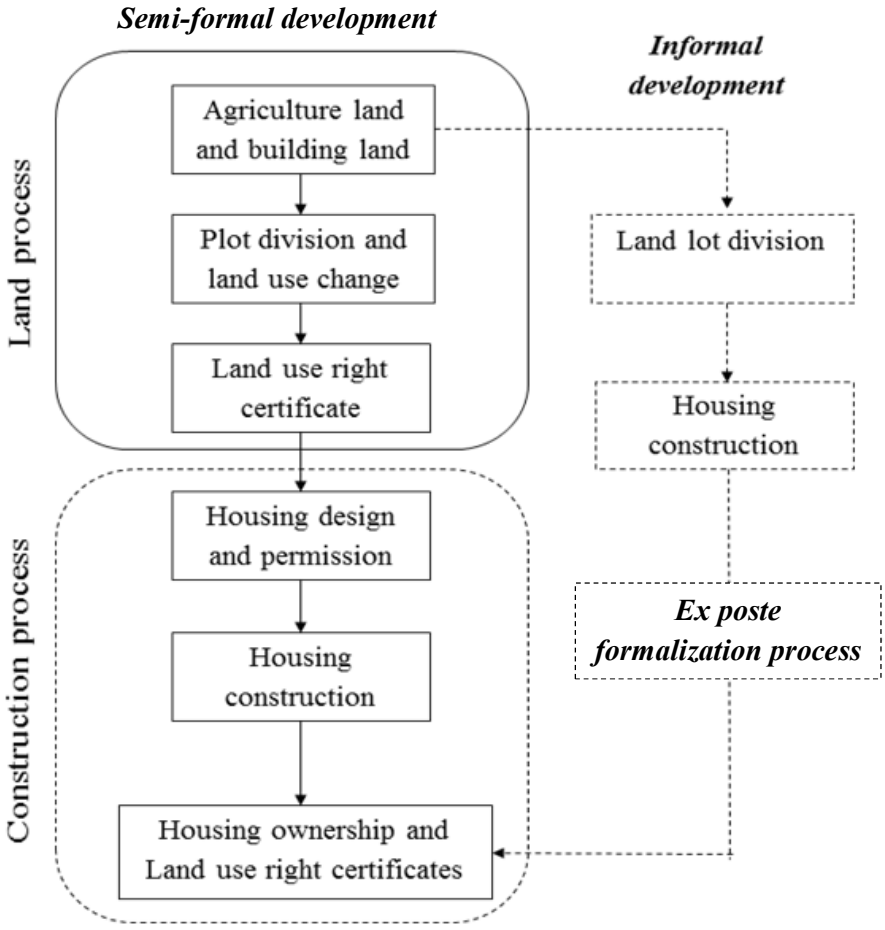
Spontaneous houses are usually built up in the urban fringe where there are cheap agricultural lands. Current residents usually come from resettlement of development projects, from other cities or provinces and also from other areas in the city.

In this process, a bigger agricultural land parcel which owned by an individual land user could be divided into many smaller plots (refer to Figure 59). Then each plot would be sold to people who are looking for a low-price piece of land for settlement, or could be someone who is seeking to benefit from the increase in land price in a short time period. Of course, all these land plots must have the tax responsibility in changing the purpose of using in order to be issued legal titles by the local authority. However, the state also has the policy for the land user to owe this tax by holding the title until the tax responsibility is done. In other words, people can change the use of land quite easy unless that land is planned to use for the state or public purposes, such as road, school, hospital, park, etc. Moreover, due to the shortage and lack of control plans in many areas in the city, this also makes a chance for spontaneous housing to spread out.

This housing supply plays a dominant role in low price housing sector, including rental housing, due to the high housing demand of the low-income group which is mostly constituted by migrants from other cities or regions.

Most of these spontaneous housing areas come with poor infrastructure conditions which make the housing land much cheaper compare to the top-down approach. Although later the local government must improve the condition by installing the proper infrastructure, but it usually takes many years to finish and with the government funding, not by the directly benefited households as in the top-down approach.

Figure 59: Self-development housing process (site 1 and 2)



Source: Author, 2014

Table 21: Comparison of the two approaches

	Top-down approach	*Bottom-up approach*
Pros	+Well planned +Fully developed with infrastructure +Good urban outlook +Legal title	+Low price with small land parcel +Can build as big they need according to financial ability
Cons	- Swept out the local residents - High price housing - Long project lifetime	- Unplanned with insufficient road width, public open space - Usually with no legal title, or just title for agricultural land use purpose (which could be upgraded to residential land use purpose) - Usually with little infrastructure: electricity, water supply and drainage - Poor surrounding environment
Current residents	+From other cities or provinces +From other areas in the city	+Local residents +From development projects +From other cities or provinces +From other areas in the city

Source: Author, 2014

6.6 Contrast between formal and informal housing processes

- *Illustration of self-help housing developments within the research sites*

The detailed process of producing of **formal housing** (FH) is described below, with the actual experience of the author as both a design architect and an owner representative to apply for construction permit for a private house, which is located in an official housing development project in the New Urban Area (NUA) in Can Tho city.

The owner is a middle-income family, headed by an associate professor in a famous research institute in the city. Through a recommendation of their friend they employed an architect [6] to 'help' designing a new house for them in a New Residential Area (NRA). The land consists of two adjacent plots with common sizes in the new residential area, 5m in width and 20m in length. The requirement of the associate professor is for a 3-storey house on one plot, the other plot for garage purpose. According to the landlord, this plot is reserved for the younger son so that he can build his own home in the future, and the coming house is for the elder son.

After a couple of design options are given, the landlord has agreed to go to the selected option and architect has completed the design drawings. Design drawings consist of two types: drawings for building permission and drawings for construction. When drawing for building permission is completed, the first step is to find a legal entity who can make the design drawings (as houses over 2-storey or total living space over 250 square meters required a functional organization to design it). This is quite easy, as private companies in building design are familiar with these 'guarantee' stamps. The next step is more difficult, which is building permit application. Since this is a NRA then the NRA's developer has the right to review and issue the building permit in accordance with the approved plan. In the role of an applicant [7], the author came to meet the management board of the NRA, and get some suggestions to fix some problems on floor levels and building setback to 'match' with the approved plan regulations and some nearby houses which were built previously. After he had finished amending the plans, the author was instructed to contact the district People's Committee to confirm the dispute over the land,

[6] In Vietnam, this phenomenon is quite common especially in small cities where the number of architects is small and most of them work for state agencies so home owners normally think it would be easier to process the construction procedures.
[7] In fact, he is the person in charge of the construction management of the project.

if any, is resolved. This is one important part of the application procedures for construction permit, although the building permit was issued by the NRA Management Board.

In the next stage, the author was required to introduce an experienced contractor to the client. This is quite easy, because there are many private companies operating in this field. The author immediately introduces his friend's construction company and they have offered an 'affordable' price, which consists of two options: full package construction (including procurement) and part-construction (only workers and construction equipment will be provided, homeowner will take care of the construction materials). After discussion, the client chose the second option. In order to ensure a quality outcome, the he assigned one relative to take care of the construction supervision and procurement of materials and equipment. Usually, construction materials are provided by small private companies operating in the city and are supplied straight to the construction site. After four months of construction, the house has been formed in accordance with the design drawings from the architect.

In contrast with this process of building formal housing, when homeowners started the process only after regulatory conditions of the land lot and infrastructure of the residential area are almost completed, the process of building **informal housing** usually start earlier, due to the urgent demand for housing of a part of low and middle-income residents. The process can begin with the initial condition that the new homeowner has the right to possess the plot of land and have an access path to the plot for travelling and transporting construction materials.

Informal housing can be divided into 2 categories: **non-formalized housing** (IH) and **part-formalized housing** (PIH or semi-formal housing). These two processes of housing development were illustrated in Figure 59.

The following example describes the actual process of building a house in the form of **IH**. A 40-year-old man has a land plot which he used as a garden for growing fruit. He inherited it from his parents and decided to build his own home on it. Although he worked in the financial sector and has little knowledge in construction, he nevertheless used his initial imagination to start outlining the sketch of the house with his own technical language. The drawings were finished, including plan and facade of the house,

with the basic dimensions showing the layout of the functional rooms and the shape outside of the house. This process is usually based on the practical experience that he gained through the other houses which were built previously and he has the opportunity to know and learn, for example from a neighbour's home or nearby relative's home.

The next step is choosing contractor to build the house. Because such houses are often expected to be of low value and homeowners want to minimize the costs, so they usually choose *'garden contractors*'. Those contractors were originally farmers, and have worked as construction workers in construction companies full-time or part-time. Part-time workers work at construction site for few months of the year and during the other months on their own agricultural land. Usually, they are a group of 5 to 10 people working in multi-jobs and poorly equipped; for example, they do not even have safety helmets[8]. The homeowner supervises the construction him/herself. For the supply of materials, the contractor is usually responsible, but with final decision on the type of material with the owner. A one-story brick house with 100 square meter of floor space and with a zinc metal roof can be formed after 3 months of construction.

The informality status of the house is that it was built without notice to local authorities. Second, it was built on land which is supposed to be used for agriculture purpose and not for residential land. Thus, during the build period, the local authority will typically come and issue an administrative punishment with a small financial fine, but still let the process go on. This tolerance could be understood, because in recent years the Vietnam State has adopted the policy to encourage people to create their own home. Further, to the local government, the scale of the house is small and it is not permanent, so building suspension or mandatory removal are not critical.

However, although located within the urban district boundaries, the infrastructure of the plot will typically involve only an alley with a width of 1.5 meter, with electricity and water supply pipes being provided through temporary lines along the surface of the alley. The drainage activities of the house and the neighbouring households may be discharged into a small canal in the area, after being filtered through septic tanks which are built within each home. Besides that, setting the house number is also a problem for homeowners and local governments. Normally the number of a new house will be set

[8] In Vietnam, construction workers who do not use safety helmets while working are very common, especially in small construction sites.

based on the neighbour number with an addition of a Latin character after, for example 31A. This also makes some difficulties and burdens for the homeowner correspondence and management of local government.

For the **PIH** type, the initial conditions are also similar to the above case of IH, but the process usually lasts longer with more procedures involved on land and building. The first step is the change of land use purpose from agricultural land to residential land. Prerequisite for this conversion is that the land plot must be in compliance with the provisions of the current approved land use plan. This process usually takes a long time and the applicant must do all the prescribed tax obligations. Usually this is a large amount of money for low and middle-income households. However, there is flexibility in how and when they pay the tax. The government can let the applicant owe this money for a certain period and initially distribute the copies of land use right certificates (LURCs). After completing the tax-obligation, they will receive the original LURCs.

Following this, the procedure for construction permit, with a scale of less than 3 stories or total living space below 250m2, gives the owner the right to design and take responsibility for it. However, a complete application including basic design drawings and the house position sketch within the area must be submitted to the local authority. This is beyond the drawing capability of the typical owner, so they have to hire an external individual or organization to do it. The next phase is the construction, entailing a construction contract between the owner and a contractor, which will be the basis for a completion procedure. Following this, the process for issuing a home ownership certificate, which is in full as certificate of land use right, home ownership and assets attached to land ownership or '*pink paper'* in short. Although the legal process of the house is pretty full, but because it is built in the self-develop area which is developed without any detail plan, it inevitably has some future risks as the area may be upgraded or redeveloped.

It can be seen that the IH and PIH development processes are interwoven in the spontaneous residential areas in the city in recent years. This process takes place in parallel with the formation and development of formal housing. In addition, it is obvious that formal housing development, which provides land plots for owners to build houses themselves, although it solves the diverse needs of people, it ends up producing house structures which are similar to the informal housing. The possibility of these cheaper IH

and PIH routes contributes to the low speed in filling the new residential projects, and does not create a significant improvement in living space or quality. More specifically, that spatial structure forms a narrow tube house that has many problems on ventilation and natural light illumination.

Table 22: Housing contrasts within the communities

	The Worst House	**The Best House**	**Level of contrast**
Site 1 (IH)			High
Site 2 (Mix)			High
Site 3 (FH)			Medium

Site 4 (FH)			Medium
Site 5 (FH)			Low

Source: Author survey, 2014

Table 23: Special cases in housing development

Case	Image	Remark
Temporary Housing		This house is a sample of 'optimize' building. All they need to build is just a front door, metal roof with steel frame and a toilet. The other walls were made up by using neighbour's walls on the left side, right side and at the back of the house lot. This temporary building structure works perfectly for those people who could only afford for the land but not a house and surrounding houses are already built. And, most of the materials from this affordable

		house could be re-used for constructing the permanent house in the future.
Water Wall		According to the householder, this low wall was built to prevent the water flow from the front yard into the ground floor of the house. Another concrete bar would be used to fit in the middle of the wall. In order to improve the resistant ability of the wall, other filling materials would be added such as sand or clay.
Storey Added		This used to be a one-storey house, which is having its roof removed for adding one more storey. The number of added storeys and building materials would [hopefully!!] be decided based on how strong the foundations and main columns are. In order to do that, usually the extension must be in the plan before, or original structural drawings of the house are available, or householders could get advices from construction engineers. (The owner wrote down in the questionnaire 'Who support for the extension? Self-support; When will it be finished? One and a half months')

Source: Author survey, 2014

- *Urban upgrading and spontaneous neighbourhoods*

As many urban areas in Viet Nam are expanding and consolidating spontaneously without plans or infrastructure, so urban upgrading is a very important development initiative. Over the last few decades, the Vietnamese government has tried some community-based efforts in upgrading the rural and smaller urban areas, however the

most systematic and effective upgrading to date is the World Bank's Viet Nam Urban Upgrading Project (VUUP) which began in 2004 (UN-Habitat, 2014).

In recent years, the Official Development Assistance (ODA) projects have had much positive effects in improving the socio-economic situation of the Vietnamese Mekong Delta Region especially for the people in urban areas who benefit directly from these projects. This is also an important contribution to reducing the development gap of the VMDR compared to other regions in Vietnam. Unlike the other ODA funds from governments of some developed countries such as Japan, Australia or Korea, which are often accompanied by the terms binding on the use of domestic goods and services from the ODA sponsor's countries, the support from international organizations such as World Bank, ADB and IMF are usually with no such specific binding, which could also be able to promote the use of local goods and services and create jobs for local people.

Among that, ODA from the WB for urban upgrading projects in the Vietnamese Mekong Delta Region including Can Tho city had a major impact in improving the living environment and condition of hundreds of thousands of local people in the spontaneous and low-income residential areas which were developed for many years without a specific development plan and with weaknesses of local government in controlling the development. However, there is concern that, in certain respects these projects also attract people to the spontaneous residential areas with poor infrastructure in the hope that they will also benefit from similar upgrading projects in the near future, despite the current risks such as eviction or demolish. But this problem is entirely due to the weakness of the local government in the planning and construction management, or more specifically the lack of a development plan which is suitable for those residential areas to develop at the beginning. For example, the authority could make a plan for the whole site with every land parcel meeting the requirement for long term use, and then encourage people to build their own houses and improve the infrastructure gradually. This solution may avoid the situation where people divide the land and design and roads themselves for the area in a temporary and ineffective way. However, that is absolutely not the fault of the urban upgrading projects, and some projects have significantly contributed to ending story of the spontaneous slums by a very happy final chapter, which is to improve the living environment for a lot of people. And the story would be completely end when the local government has a feasible plan and a strong capability in the management and control of urban development, especially in housing.

- *Spontaneous neighbourhoods: pros and cons?*

The pilot fieldtrip to spontaneous housing area in An Khanh ward in early 2014 revealed some of the pros and cons of the spontaneous housing development. For example, a young mother with a four-year-old son said that:

> "I've been living in this house since 2010. The original owner built this house and sold to me. I and my husband are working for a local state bank and we are from other provinces. We still do not have any legal title, because the original land owner had some loans from the bank and the bank kept the land title for mortgage. So, he could not finish the land transfer procedure although we half paid for the house and land. However, we are glad that we have a permanent place to live, otherwise we have to move around for a hostel. We have to borrow money from our parents for buying this house. Before that we used to live in a hostel. We are trying to register for the household book, because my son will have to go to school soon, otherwise he could not go to public school. We were inundated up to the bed. You can see the foot of the wall is still wet and stained. It affected our life so much, and it also destroyed our stuff. So, last year we filled up the ground floor around 0.6m more to be higher than the flood. Everything seems better now, we are not inundated anymore when it rains or tides [are high]. The surrounding environment is getting worse since we first came here in 2010. The neighbour houses are growing rapidly, but there is still no drainage system so we have to use the canal for drainage. However, there are electricity and water supply from the authorities" (Interview with local resident in site 1, pilot fieldtrip 2014).

Generally, the current model for urban development model in general and housing, in particular in the form of self-help housing, has provided much positive results and got the strong support from all of the participants and stakeholders, ranging from the urban residents to the local officials, whom most of them also participate in the development of housing in the form of self-build. This is because it is simple and based on the current status of the existing land distribution, without going through the land revocation and redistribution of land on a large scale. However, these benefits seem to be only for the short term and may cause some trouble for the middle and the long term of the city planning and development.

Some of the short-term benefits include: that the former land owners benefit from the transfer of land; the new owners benefit from low price of agricultural land but becoming much higher when make it residential land; people who already have land could find their way to build up their own house; the local authority could collect some tax from housing and land; full-time and part-time construction workers could have jobs, etc. But, we should ask ourselves, behind the benefits what were the trade-off, what were the losses and who lost out?

We could easily see that, with this choice for housing development, the current urban residents and especially the next generations to come in the future would be losing the opportunity to live in the modern residential areas which are planned and built with full infrastructures and social services such as parks, recreation centres, schools and health centres. They would be struggling in the crowded residential area with narrow alleys and poor infrastructure, with the hope that in the future urban upgrading project will come and improve their situation thus bring them benefits, both physically and financially.

Besides that, local governments also lost the opportunity to create and effectively manage long-term residential areas with high sustainability. They still have to solve the daily situations of illegal construction, illegal land occupation and encroachment on canals, etc. They show reluctance to provide the essential infrastructure for the residential area in a temporary way, which would lead to them having to redo the work several times, without a long-term legacy, and with reduced economic efficiency of investment. And above all, the formalizing process of the spontaneous housing could reduce or destroy the strictness of planning law and create a bad precedent for other illegal construction in the future.

Finally, the problem of planning and urban development is a major problem. It is especially difficult to be able to ‘do it again’ as informal areas are upgraded, unless government accepts to pay an expensive price. The development of residential areas and the application of urban upgrading solution for the spontaneous housing areas as the final solution provides valuable lessons for the local government in the management of housing development. Hence, in choosing the best model for urban development, local government should carefully consider and take robust action to ensure that urban and housing development are under the direction that follows a sustainable and effective way.

- *The "Land Lottery"*

This section describes a situation that has happened in some Vietnamese cities by using the case of Can Tho city, particularly the site 1, a spontaneous residential site which is adjacent to the main road Nguyen Van Cu (40m width). It provides a lesson of local government in managing development projects and land use control.

In recent years, there are many investments from the state in the urban infrastructure, especially the road network for both inter-city routes and within major urban areas in Vietnam. Thereby a lot of new routes have been opened, which were sometimes up to 40 or 50 meters in width. In this process, the state only focused on road construction projects in order to minimize investment costs including compensation for site clearance and construction of resettlement areas for people. There is nothing wrong in principle with this solution and could be understandable with the condition of limited budget of the government. However, there are shortcomings in the land management policies, which are now very loose, especially with the absence of a specific development plan for the management platform. Thus, some individuals and organizations have taken advantage of these weaknesses of the policies in order to make profit from the exploitation of the land value before and after constructing the road, which makes the land adjacent to the two sides along the roads become much more valuable than before.

In particular, before the road project is identified on a map, the existing land of that area is usually agricultural land which is used for rice crop, fruit or fish with a small portion of land used for those farmers' settlements. Immediately after the approval of the project, which includes the design of the road, some people would intend to play the 'land lottery' with the land adjacent to the sides of the coming road in the near future, a gamble that some players know they could win for sure. Especially when the detailed information about the road project is usually limited to the public, so many people do not have a full perception on what will be going on, which could lead them to sell their land to the 'lottery player'. There are also some cases that the original land owners realized their 'golden opportunity' so they try to keep their land for that future chance. At this stage, nothing is apparently wrong and no trouble has been caused. The problem only happens when the 'players', with the support of local officials, utilize the weakness of policy in land management in order to change the land use purpose from agriculture with low price into residential or other non-agricultural land with much higher price.

Although there are some differences between the specific cases, the common process is usually as follows: first, the landlord will divide their bigger plot into smaller ones with some reasons, such as give assets for their children or to sell it to other buyers. Then, the new landlords will apply for the land use purpose change for all or part of their land from agriculture use to residential land or commercial land. Of course, in this process, the local government could collect some tax on land use purpose change, but this is just a very small amount if compared with the huge gap between the two prices. This problem has happened because the authorities based compensation on the land price framework for taxing, which is always much lower than the market price. After or even during this step, some of the 'players' would like to sell out their land for profit, and some other want to keep their land for future better price or just build their own house to live. Up to now, with the same land plot, from a low value of agricultural land it turns into a much higher value for housing or other commercial purposes, while the amount of money that goes to the local government is not much. So, we can see that the 'lottery player' could earn a large amount of 'profit' from this 'investment' and a very small part goes to the original landlords (farmers) and government budget. It implies that the player could 'play' this gamble because there is the 'support' from the local authority, through the decisions of official in charge of land and construction management. This could lead to the corruption environment where player and official could share the profit.

The above problem results from the incomplete development plan and the weaknesses of the land policy. However, with a pro-self-help housing approach of local government, it is quite difficult to prevent this situation from happening as it shares the same process with the informal self-help housing. In fact, the local governments have learned some lessons and adopted some solutions such as revoke more beneficial land on both sides of the road for leasing to other developers. And this approach is quite successful in Can Tho when the extension of the Nguyen Van Cu road was done with 200m on both sides of it was taken back by the local authority.

6.7 Conclusion

In conclusion, the Vietnamese policies on land and housing still have many gaps. The task of making the plan and managing the plan are still very weak and outdated. This causes many harmful results in urban development management, makes losses to local government budgets, creates unequal investment environment and raises corruption.

With the three main types: spontaneous self-help, subsidized self-help and commercial/popular self-help, self-help housing has provided plenty of opportunities for housing urban residents. Spontaneous self-help housing is in favour of the low and middle-income groups of people especially migrants as it provides low-cost land and upgradable housing plan, while subsidized self-help housing is an effective tool for local government to relocate people from the public development projects, and commercial self-help is more in favour of the middle and high-income groups.

Commercial or formal self-help housing has provided a flexible option for people in building their own houses as they wish, so it has become the most favoured type of housing in urban Vietnam in the past few decades rather than pre-build housing.

Informal or spontaneous self-help housing has not only provided low-cost housing for the low and middle-income groups but also reflected the reaction of people towards the unfair and often unequal outcomes of the compensation policy for the formal housing and urban development projects. These policy limitations have triggered the race in housing development in urban Vietnam between the individual land owners and the property developers, where most people are trying their best to take and keep the occupation of the land and the rights on it as it could provide a significant profit in the process of the city development.

With this self-help driven housing development practice, the traditional urban planning (hard plan) seems does not work well and usually ends up with 'hanging plan'. So, the local authorities should adopt a 'flexible' or 'soft' plan for urban and housing development in Vietnamese cities that could on the one hand control and manage urban development effectively and on the other promote self-help housing to develop. In other words, local plan would be much more successful if it could change the illegal spontaneous self-help housing approach into the legal 'supported self-help' housing approach in which every household could easily build up their own houses legally with the support of local government through a feasible plan.

This chapter attempted to compare the two housing development processes driving the urban scenario, the formal and the informal (or self-help) process. In those processes, land price is the most important issue for residents in the research area, especially for the young families who migrate from rural areas or other provinces for jobs or better income. The initial lack of legal title of the land and house is not such a big

problem in practice. For most of them, the only document they have is just the written agreement with the original or secondary land user. And the legal status of the land usually is for agricultural purpose. However, the land price would see significant change after the transition into residential use. This could easily be double or higher than the initial price. Therefore, this encourages many people to enter the market, including those who are seeking for profit in land transfer. For example, on a formal website for selling land and house, the house plot for sale in the same area varies from 2.5 million VND to 7.8 million VND (for agriculture and residential land, respectively). For attraction to the buyer, the land seller usually indicates the land as 'without plan', which means there is no detailed plan for this land, or in another word there is no specific developer for this area so the residents can build houses by themselves.

This chapter found that the phenomenon of spontaneous housing usually took place in the areas that were not covered with the detail plans. For the other areas, which are covered by detailed plans, there are few houses developed in the same way. This is due to the restriction of the local government in housing construction. So, we can see the contrast between the two neighbouring areas in housing development and trading. This causes a fragmentation in land use within the city, and also causes the inequality among the residents in land use rights. The right of residents would be very limited when their lands are covered by detailed plans with a specific developer. They only can repair or build a temporary house while the developer will still not compensate and relocate them in a new place. This is usually called 'hanging plan', when the development progress is delayed or postponed.

The weak planning system and urban management on the one hand has provides a good chance for people to maximize their ability in developing their own houses, but in other hand has produced some problem with low quality neighbourhoods that require upgrading in the near future. The failure of the formal housing development system, especially in land revocation and compensation, has created negative impacts on the efficiency of land use. It has also broadened the gap and conflict between the original land users and estate developers. Somehow, this could lead to the inequality between groups of people and widen the gap between the rich and poor people in Vietnam. In this sense, self-help housing could become a reaction of people towards the failure of the system, when they have tried their best not only in improving their living condition but

also maximizing their profit and right which have been generated during the transition of the Vietnam economy.

However, in Vietnam self-help housing, including both the formal and informal versions, has satisfied the need and ability of many people across the low to middle and even higher income groups. Thus, self-help housing has provided a variety of housing types and qualities from a simple house to a luxury house. Although self-help housing has played an important role in housing development in Vietnam, the current approach in self-help housing development still has some limitations such as making low standard neighbourhoods, inefficient land use and causing many difficulties in urban management for the local governments.

In the case of Can Tho city, this study revealed that self-help housing will continue to play an important role in urban and housing development in the short and medium term. Thus, urban planning must consider self-help housing as a core approach in achieving a more feasible and effective plan for city development.

CHAPTER 7: HOUSING PREFERENCE AND ITS EFFECT ON THE DEVELOPMENT PROCESS

7.1 Introduction

There are some popular proverbs in Vietnam regarding the role of land in people's lives, such as '*I don't have any piece of land for plugging a stick*' or '*a piece of land is a piece of gold*'. To most people, especially the farmers, land is the most important thing in their life. In their thinking, land stands for life but also for death. They could not do anything to survive without land. They live on land and die in land, but also prepare for or at least account for the next generation to come with land resources. So, the land plots and houses on it are not only paramount for the current owners themselves but also for generations to come.

This chapter will explore the preference of the residents in newly developed urban areas in Can Tho city in particular, which will also arguably reflect the general housing preferences of Vietnamese people. The data from across the five study sites in Can Tho city are used for analyzing the housing preferences of urban residents, including both quantitative results from the questionnaire survey and also qualitative data from the in-depth interviews with twenty householders. Moreover, the questionnaire survey also provides some quantitative analysis on how the urban residents expected their house to be built and options chosen when making decisions during the development process of their own houses. Some comparative analysis between the data from the censuses and the author's fieldtrips are also conducted in order to understand more deeply the housing patterns and characteristics of Can Tho city in comparing to the whole country.

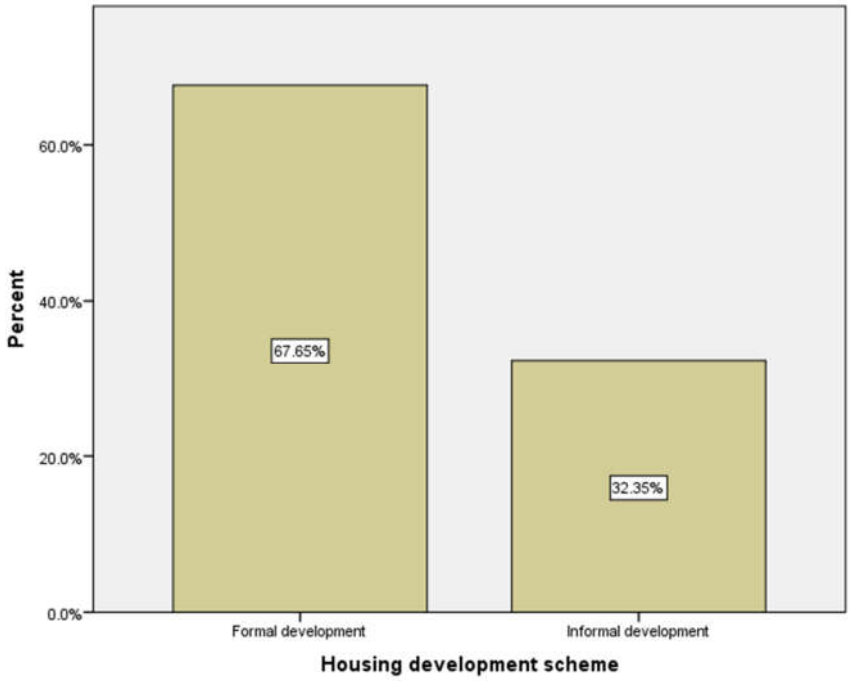
The housing preference, including housing type, size, location and also the way they obtain it, is usually affected by the household income. These major housing preferences would be discussed further in the following sections of this chapter. Beside the traditional factors is housing demand/choice models, such as price, location and housing condition, there are some other factors which affect the decision-making of residents, in this case particularly, such as planning status or options for later formalisation and upgrading. Thus, the government should play a major role in controlling the housing development towards a more sustainable future for all citizens especially the low and middle-income people. An understanding of the formalisation

process facing low and middle-income households, and its effects on their decisions about locating and building their homes in spontaneous housing areas of the urbanizing context of Can Tho city in the VMDR, is important for informing future plans and policies for housing in this city. It may well be that there can be suitable urban areas for self-help housing development, which could thus provide more sustainable housing policy for the low and middle-income groups of people in the Can Tho city. Better understanding of these issues can also potentially help the local authority in urban management and building control of the housing development.

7.2 Household's characteristics

This section discusses in detailed some of the main characteristics of the households in the survey. As explained in the previous chapters, there are two main types of housing development in Can Tho, which are formal and informal development. Figure 60 shows that, among 507 households participating in the survey, over 32 percent of the houses were developed under the informal scheme. These informal houses were only located in site 1 and site 2. Site 1 contributes most of the informal housing, as it is a spontaneous residential area, while Site 2 is a mix of relocation housing and spontaneous housing. However, many house owners in these two sites have acquired the legal titles through the retrospective formalization process, although they were developed under the same process as the other informal housing. This process of formalizing the housing legal title will be discussed further in the following sections of this chapter. In contrast, most of the houses in sites 3, 4 and 5 were formal housing, although some of the owners there do *not* have their titles for the house and land. This may be because of some specific reasons, such as when the developer placed them with the bank for mortgage security, or they have not finished the required infrastructure or paid the tax duty required by the local authorities, so that the authority has not issued the property title yet.

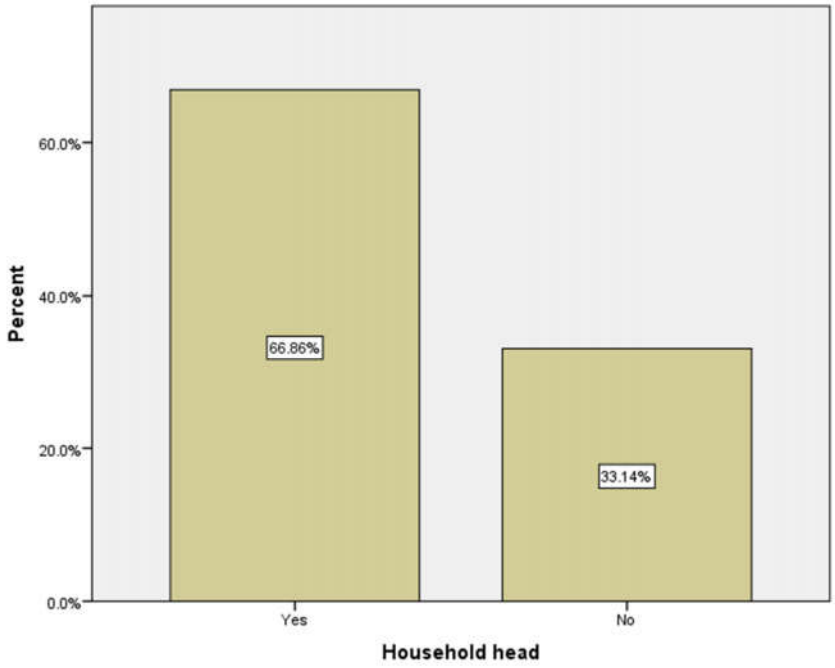
Figure 60: Housing development scheme 'formality'



Source: Author survey, 2014

Figure 60 shows that only 67 percent of the respondents are the household heads, this has some effect on the information which were provided in the survey, as the household heads are usually the household members who have the precise information that related to their own housing development process. That can give some explanations for the 'unknown' answers in the questionnaire survey. However, in some cases, the household heads are the oldest man in the family, who may be in the retirement age but not the person in charge of building the new house; in that case it would usually be their son or daughter who is the decision-maker in both the technical and financial issues of house building.

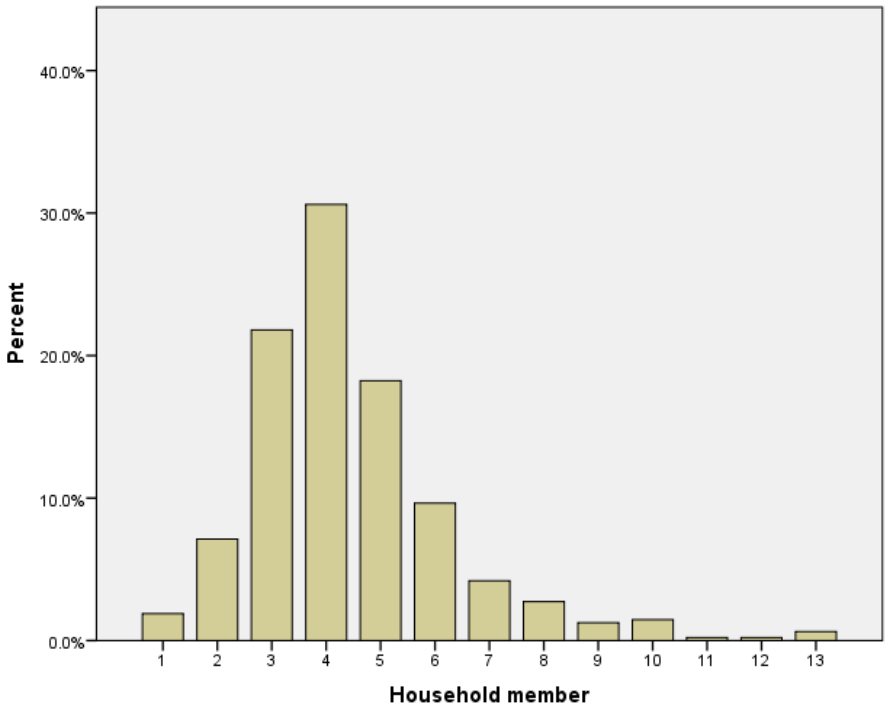
Figure 61: Whether respondent is household head



Source: Author survey, 2014

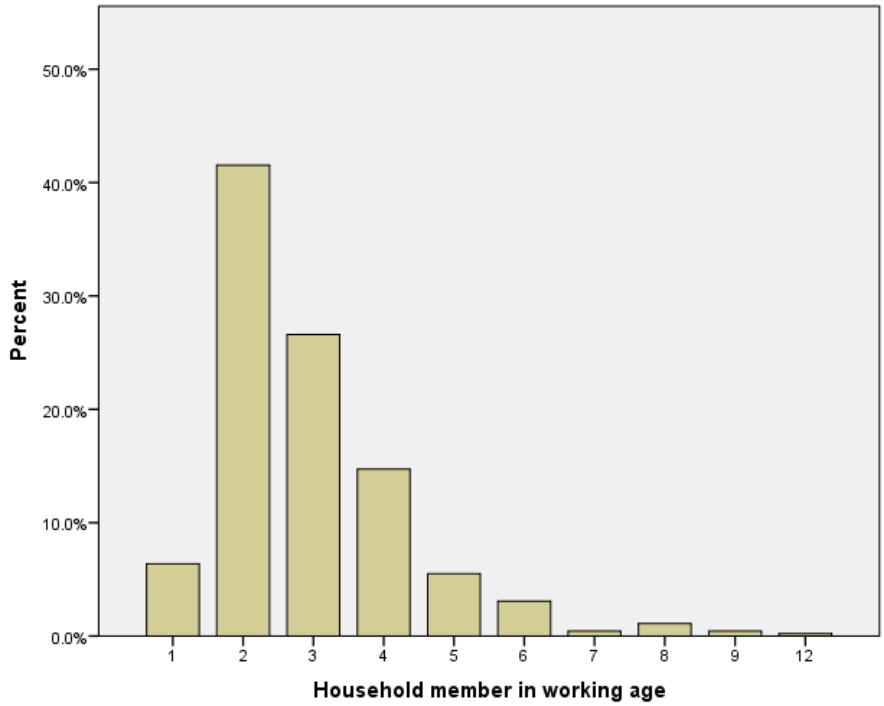
Another important characteristic of household (HH) is its size. Figure 62 and Figure 63 show the distribution of HH size and the number of HH members of working age among the responding households. Most of the HHs had 3 to 5 members of which there were typically 2 to 4 people of working age. The working age as defined in Vietnam is from 18 to 60 for men and from 18 to 55 for women. We can see that HH size of the urban families in Vietnam is relatively small. 23% of the HHs have only one generation, 49% have 2 generations, 25% have 3 generations, and 4% have 4 generations or more living together in the same house (see Figure 64). Larger sized and multi-generation families usually require a bigger house to accommodate them all. However, in Vietnam there is no regulation on the maximum number of people that can be accommodated in one house or room, as in some developed countries such as the United Kingdom where there are standards for the number of bedrooms for accommodating people. So, in some cases, many members in one family could share only one bedroom together. At the same time, some better-off families could build a multi-storey house, partly for locating different generations or sub-family in different storeys of the house.

Figure 62: Number of members in household



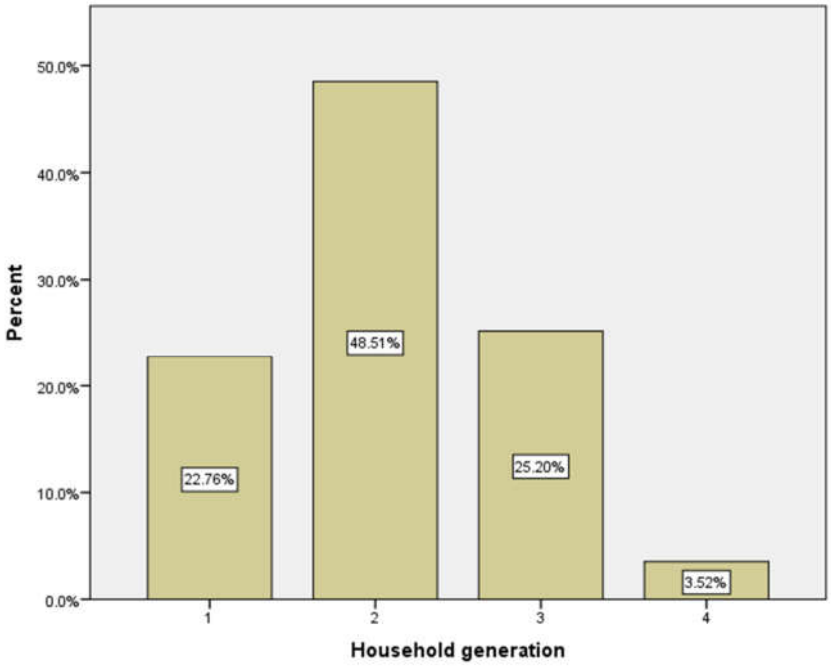
Source: Author survey, 2014

Figure 63: Household members in working age group



Source: Author survey, 2014

Figure 64: Number of generations present in household

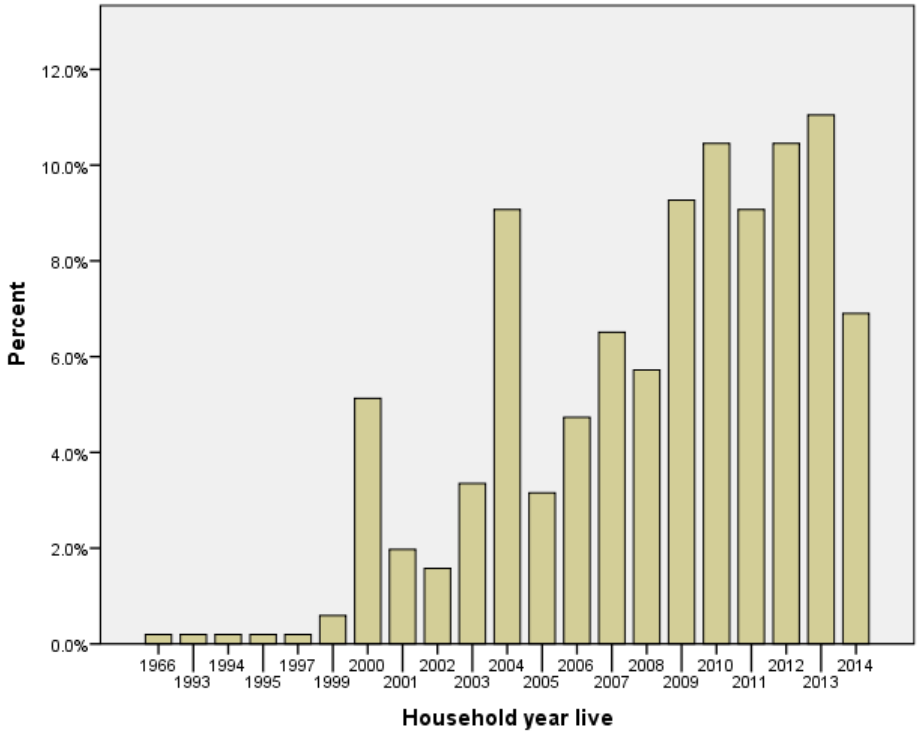


Source: Author survey, 2014

Respondents were asked about the date that people started to live in their current house. The data in Figure 65show that most have moved in since 2000, with a peak ten years ago, and generally more moving in over the last 5 years This shows an increase in housing demand in Can Tho city in the past 15 years. We can see two peaks in the year 2000 and 2004, when the relocation areas were developed to relocate people whom were evicted from some public development projects.

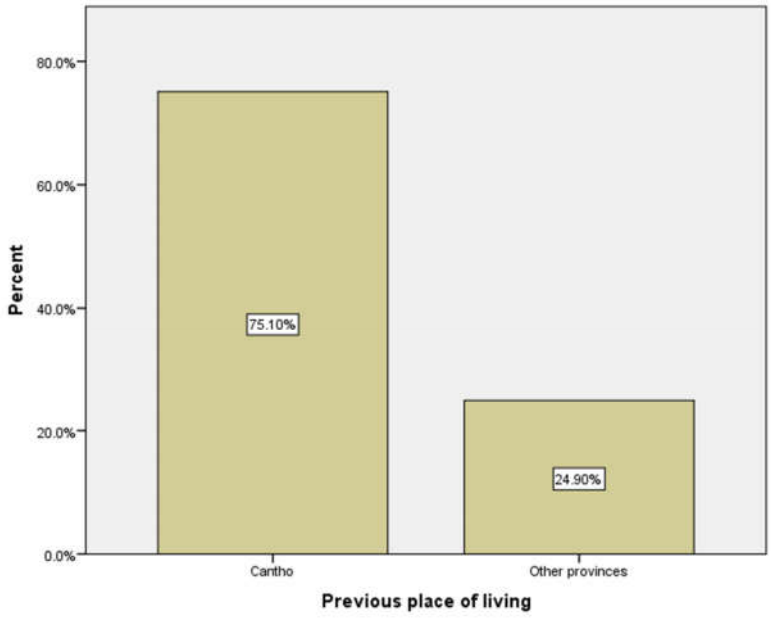
Figure 66 shows the percentage of migrant people from other provinces to the Can Tho city among those who settled in the five residential areas of this research. We can see that nearly 25% of the householders are external migrants from other places outside of the Can Tho city while other 75% are internal migrant from other places inside the Can Tho city. Since Can Tho is not a city which has massive migration from other regions, this suggest that the new housing areas play quite a significant role in housing migrants.

Figure 65: Year household started to live



Source: Author survey, 2014

Figure 66: Previous area of residence (province)



Source: Author survey, 2014

The following Table 24 shows the reasons why people changed their place of residence in the past fifteen years, showing the five case study sites separately. Except on the site 3, which was developed mainly for relocation purpose, people chose to live in the other sites for different reasons. We can see that the four main reasons for moving place of people are: 1) Job or study; 2) Eviction of previous place; 3) Household division; and 4) Better living environment or condition. However, there were some differences between the sites in the balance of reasons. For instance, the informal sites (site 1 and 2) were used more for household division and family reasons such as job or marriage, but less for better living conditions. It implies that the reasons of moving place of people in the informal site were more for need and less for aspiration of a better living condition, which was the main reason for changing place of households in formal sites (site 4 and 5).

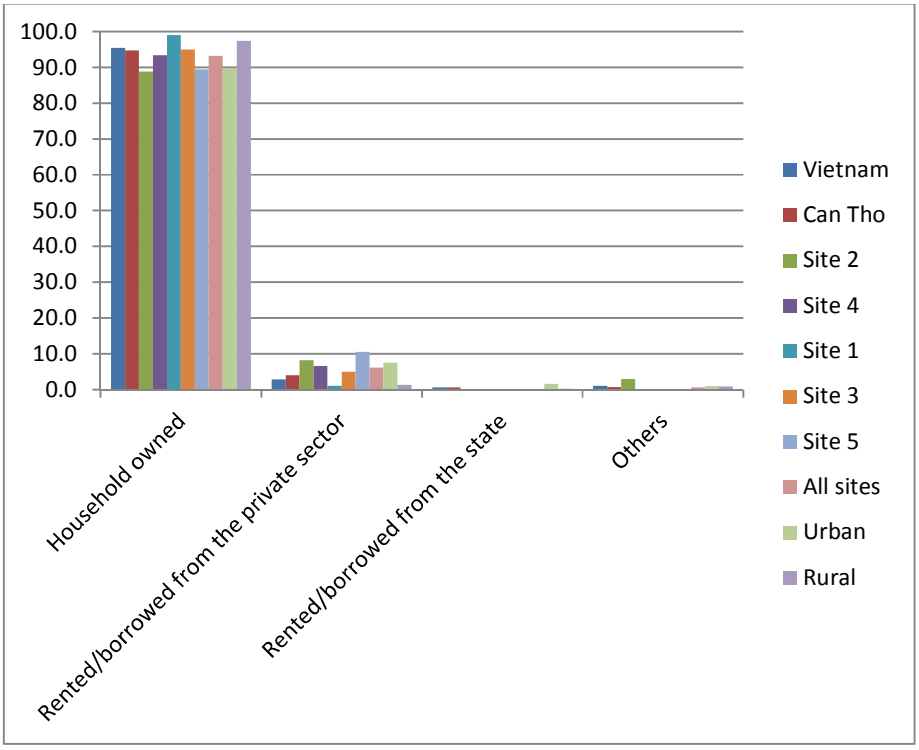
Table 24: Reasons for changing place within sites

Reason	Site 1 An Khanh SRA	Site 2 An Binh RRA	Site 3 Thoi Nhut RA	Site 4 91B NURA	Site 5 Phu An NURA	All sites
Household division	23.7	27.0	12.6	21.0	4.1	16.9
Job or study	23.7	27.0	9.5	26.0	28.6	23.0
Marriage	15.8	10.0	3.2	2.0	4.1	5.8
Eviction of previous place	5.3	12.0	52.6	2.0	31.6	22.5
Move to live with relative	5.3	18.0	2.1	19.0	2.0	10.0
Inheritance	0	1.0	0	4.0	0	1.2
Better living environment or condition	10.5	5.0	12.6	21.0	27.6	16.0
Others	15.8	0	7.4	5.0	2.0	4.64
Total	**100**	**100**	**100**	**100**	**100**	**100**

Source: Author survey, 2014

The following figure (Figure 67) shows the dominance of private ownership of dwellings across the country in Vietnam both in urban and rural areas (over 95 percent of the houses were privately owned and used by the householder). Rental housing rate is quite low (under 5% in both Vietnam and Can Tho city). However, the number of rental housing in the research sites was higher than the average of Can Tho city and Vietnam, except the site 3 which was a relocation area so most households could not let out their only one dwelling.

Figure 67: Ownership of dwelling

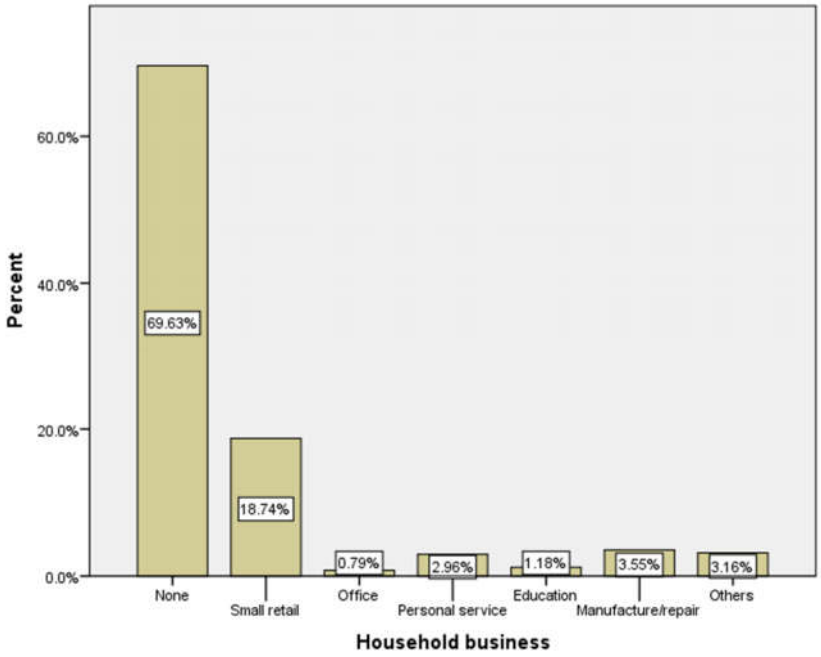


Source: Author compiled from Census 2009 and Survey in 2014

The following two figures (Figure 68 and Figure 69) show the picture of private economic activities of households in the five research sites. In Figure 68, we can see that over 30 percent of the households had businesses at their houses. Most of these businesses were small retail shops for selling common groceries (nearly 19%). Figure 69 shows that nearly all those businesses were owned by householders and very few businesses were owned by tenants.

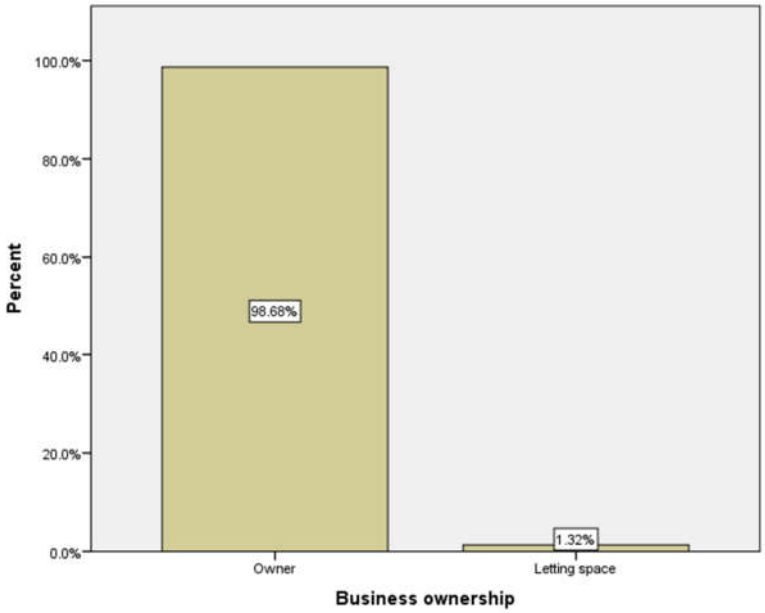
Figure 70 shows that nearly 20 percent of households owned another or more houses at the same time. This could happen as most of these household had lived here less than 15 years and they could still own their previous houses and lands. However, these tended to be the case of the better-off household which resided mostly in site 4.

Figure 68: Household business



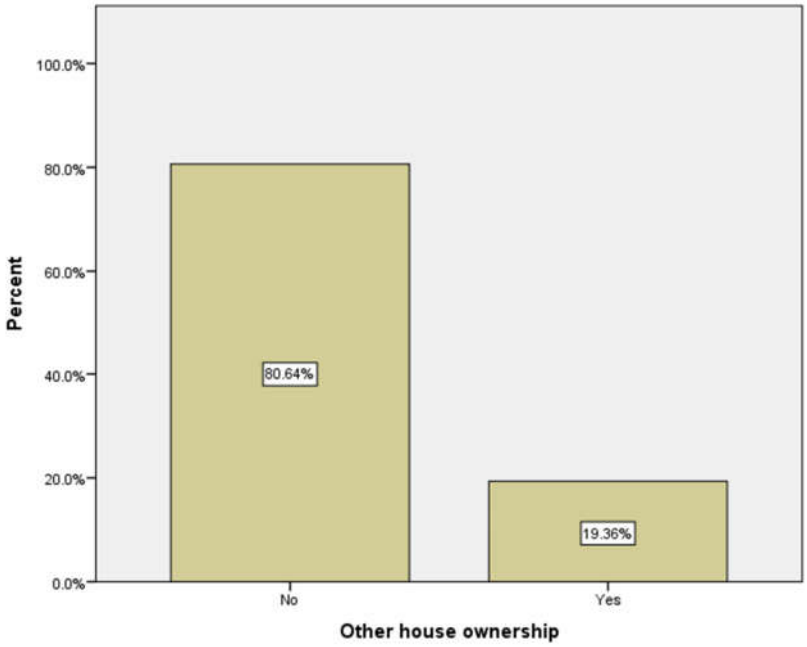
Source: Author survey, 2014

Figure 69: Business ownership



Source: Author survey, 2014

Figure 70: Other house ownership



Source: Author survey, 2014

- *Transportation*

This following section discusses the means of transportation of the urban residents within the survey sites and its effect on the urban and housing pattern and design. The most popular means of transportation of the local residents is motorcycle. From the survey result, among the total number of 587 privately owned individual vehicles, there are 401 motorcycles which contribute 68 percent, and which reflects the fact that many of the households have two or three motorcycles. The use of bicycle is still common with 28 percent of the households having one bike, while car using just only contributes 6 percent of the total number of private vehicles (see Table 25).

So, it is obvious that the car is a luxurious means of transportation in Vietnam even for the middle-income households, and with the poor public transportation system such as bus and complete absence of train or tram line in Can Tho city that makes motorcycle the dominant option of people for travelling. This has a great impact on urban planning and design, in which facilities for public transportation and private car such as car park, bus stop or bus lane are not given sufficient consideration and development. It also has an impact on housing design, as most of the houses do not have garage because

people can use the living room or whichever room that has access to the road to park their motorbike or bicycle, due to their small volumes.

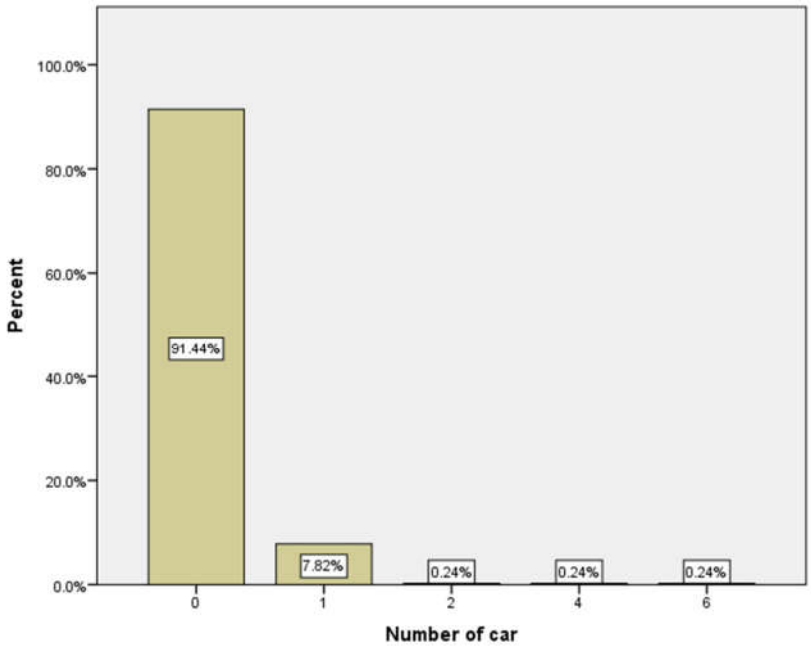
Table 25: Mean of private transportation

Type of vehicle	Number	Percentage
Car	35	5.96
Motorcycle	401	68.31
Bicycle	151	25.73
Total	587	100

Source: Author survey, 2014

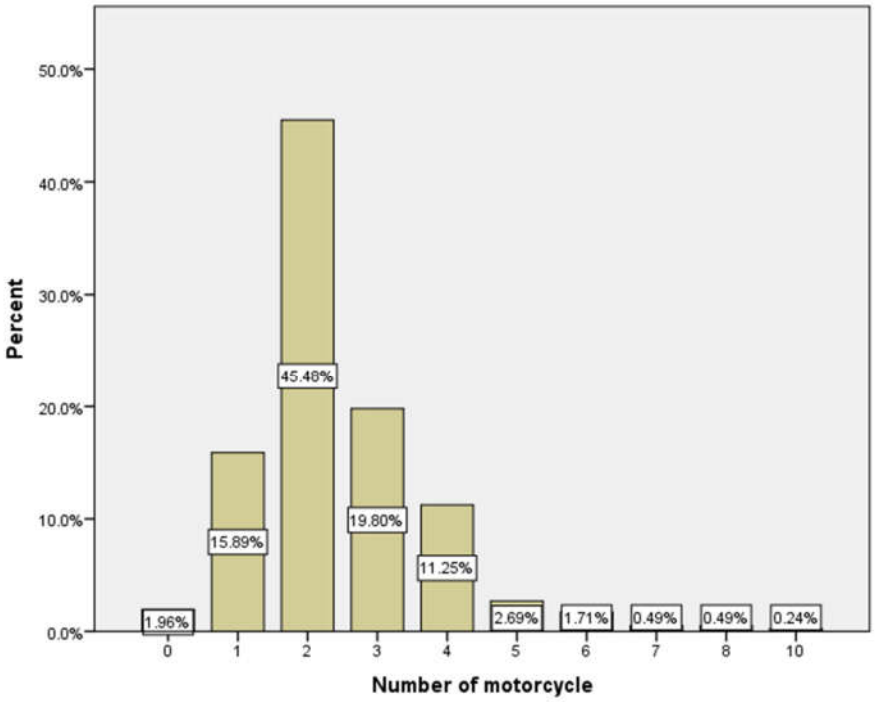
In another study on traveling habits in Hanoi city, Hoai Anh Tran and Schlyter (2010) found that respondents in the old and poorer residential areas walk more, while better-off respondents in the new areas use motorized transport modes such as car and motorbikes to a greater extent. They also found that the differences in travel patterns between women and men are similar to those found between the residents of poor and affluent areas in two aspects: women walk more and men are more motorized.

Figure 71: Number of car in household



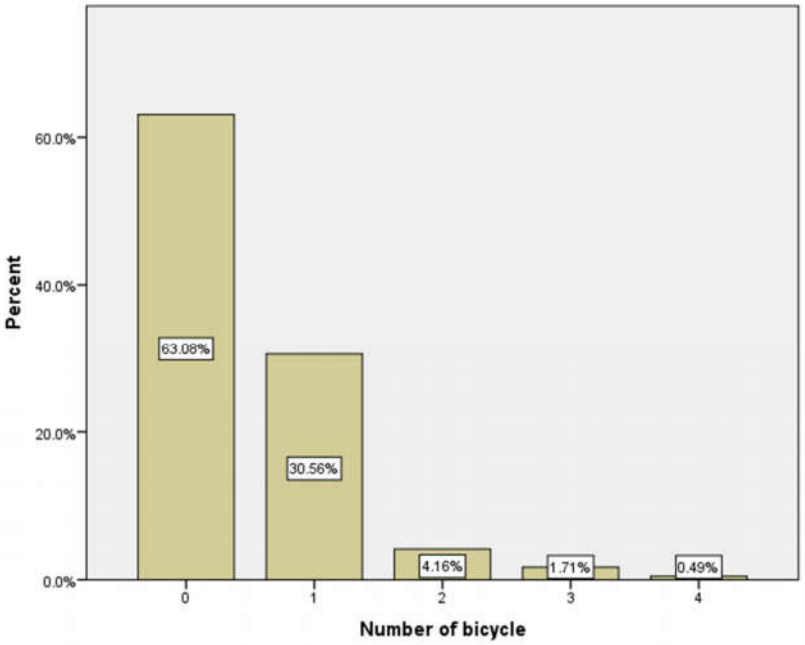
Source: Author survey, 2014

Figure 72: Number of motorcycle in household



Source: Author survey, 2014

Figure 73: Number of bicycles in household



Source: Author survey, 2014

7.3 Traditional housing culture and common perceptions on housing

This section discusses the traditional and vernacular type of housing in southern Vietnam with a focus on the Mekong Delta area. In the previous chapter, we have explored some geographical and demographic characteristics of the VMDR. This helps to shape the housing culture, which is now explored and discussed in more detail, in the light of the survey findings. The urban housing structures and broader urban structures of major cities in the VMDR have the similar main characteristics which are associated with agriculture-based and river-based development. As discussed elsewhere in the previous chapters, due to the relatively low level of economic development and the low proportion of the industrial sector in the urban economy of most cities in the VMDR, many people in the fringe area of VMDR cities are still living on agricultural production, so they live on the land where they do the production in order to protect their own crop. So, the original housing pattern in VMDR urban areas is quite dispersed, with housing lines (in rows) that have been connected to river and canal flows.

When making the decision to build a house, most of the housing owners usually expect their house to last for their whole life and even to the next generation. So, they will put the best financial resources they can afford into the building construction. It is interesting to note that most of the self-building households do not get any support from bank loans, but usually use their saving and borrowing from relatives. One of the reasons is that individual access to bank loans is not easy, especially for those who develop their house informally. This is not such a problem for formal self-help housing, but for the informal sector, that is a big issue, because of the risks associated with planning and the possibility of land being revoked by the local government for development. They are facing a risk that may lead to the destruction of their house with little or no compensation from the government or private developers; in consequence, the bank would face the risk of loan default. Therefore, banks will require 'good title' to the house and land.

7.4 The role of the row-house in the Vietnamese housing system

In Vietnam, the row-house, also called tube-house or street-house, is the most common type of housing in urban areas. In fact, row-houses are scattered all over Can Tho city and are a dominant dwelling form in all large Vietnamese cities (GSO-VN, 2010, GSO-VN, 2011). However, this form has not been adequately studied so far, though it is sometimes strongly criticized in Vietnamese architectural and urban debates (Kien,

2008). In Vietnam, the row-house is often used, not only for living purposes, but also for commercial purposes, such as a shop or office. Thus, on the one hand this provides a diversity of mixed used residential areas where people could easily reach grocery shops, restaurants, or personal services within few footsteps, or work in the same. On the other hand, this model of housing also leads to some problem in urban management in Vietnam, such as parking space for those shops, which usually end up blocking the pedestrian way.

By using the case of the old quarter street residential area in Ha Noi city, Kien (2008) studied the difference between the traditional tube house and the neo-tube house in Vietnam urban areas. He identified some main signature characteristics of these types of housing (see details in Table 26 and Table 27). He concluded that, although the traditional tube house built in the 16th-19th centuries and the neo-tube house built after 1986 have many obvious differences (eras, functions, techniques, materials, lifestyles, ownership…), they have similarities and are in an influential relationship (Kien, 2008).

Table 26: Identity of Traditional Tube House and Neo-Tube House

	Type Identity	Traditional TH	Neo-TH
1	Construction period	16-19 Centuries	From late 1980s
2	Settlement pattern	Attached	Attached
2	Average plot size	3.5m x 35m	4.5m x 20m
3	Tube-form layout	Yes	Yes
4	Tube-form facade	No	Yes
5	Street access	Yes	Yes
6	Front shop	Mostly yes	Mostly yes
7	Front yard	No	Mostly no
8	Inner yards	Yes	Yes/No
9	No. of storeys	1-2	3-5
10	Spatial structure	Multiple alternate built groups -yards	Mostly single mass built group
11	Building materials	Ceramic roof tiles, wood beams, brick walls, plaster	Rein.concrete bearing frame, brickwalls,plaster
12	Technique, process	Manual, multi-phase	Manual, mono-phase
13	Functions	Commercial + dwell.+(workshop)	Commercial + dwelling
14	No. of households	Mostly multiple	Mostly single
15	No. of residents	Ca.10	Ca.3-7
16	Ownership	Multiple/Single	Single
17	Social connection	In-house & Street	Street (limited)
18	Life style	Community-oriented	Fairly isolated

Source: (Kien, 2008)

Table 27: Characteristics of Traditional Tube House and Neo-Tube House

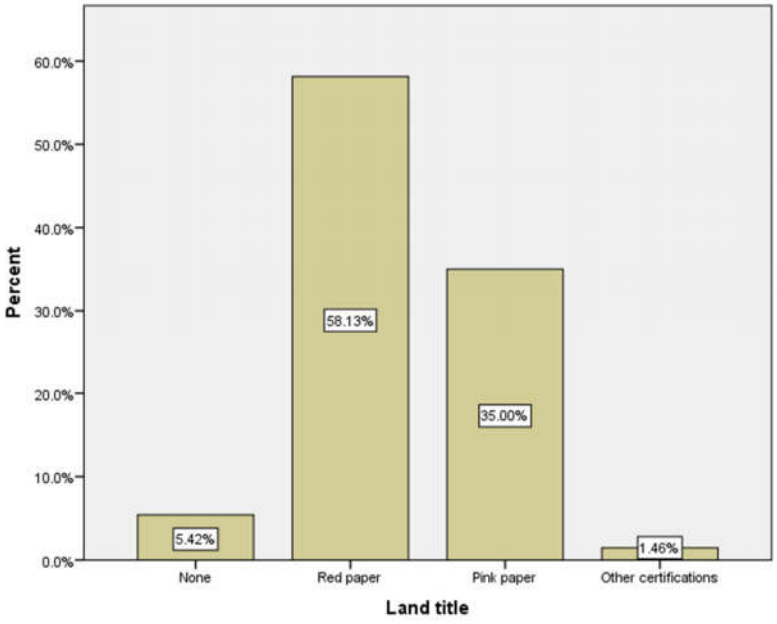
	Type Characteristics	Trad. TH	Neo-TH
1	Good eco-sufficient spatial composition	Yes	No
2	Smart expandable spatial composition	Yes	Limited
3	Eco-sufficient house-group composition	Yes	No
4	Massively constructible & customizable	Yes	Yes
5	Human-scaled façade (cozy streetscape)	Yes	No
6	Micro-universal enjoyable inner yards	Yes	Limited
7	Street as community connection space	Yes	Yes/No

Source: (Kien, 2008)

7.5 Characteristic of housing development

The most important factor for housing development of the urban residents in Can Tho city as anywhere else is the access to land for housing and the land tenure. The results from the survey show a high level of legal title of the land used by householders. Figure 74 shows that almost 95 percent of the house owners have had legal title for their land, including the informal housing land, and only 5.4 percent of the households do not have any title or certificate for their land. This might happen as a result of the informal transaction of land from the original land owner to the new buyer of that land plot for building a new house, and in some cases the original land owner put the title in the bank for mortgage. Besides that, most of these lands are still under the agricultural land use purpose and must be changed to residential land. However, not all the applications will be approved as the local government bases on the land use plan to decide.

Figure 74: Land title



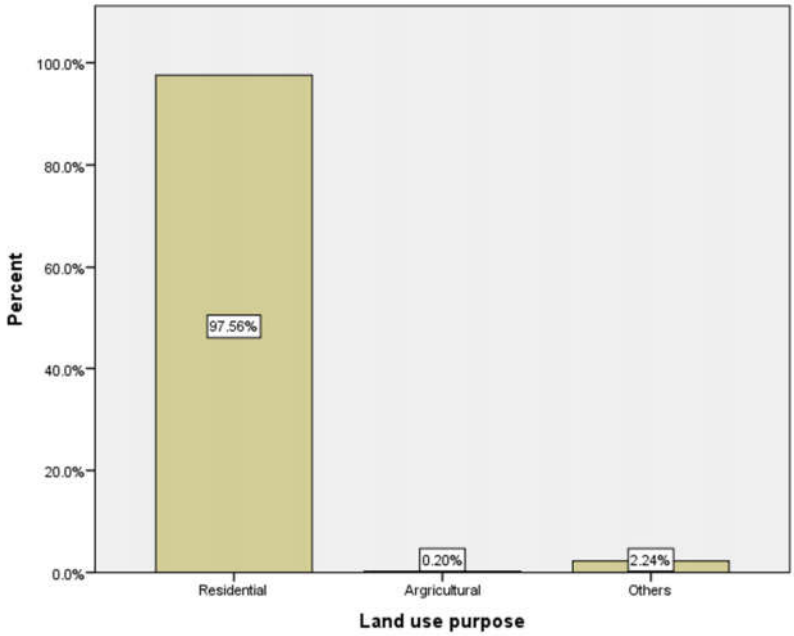
Source: Author survey, 2014

Figure 75 shows that over 97 percent of the land plots in the survey are zoned as residential land and just only 3 percent of the total land plot is still in agricultural and other purposes but with a house on it. This phenomenon could be explained by the flexibility in land and tax policies in Vietnam, which encourages people to pay tax for changing their land use purpose from agricultural to residential or other purposes (non-agricultural land). This also enables the government to collect some more tax, as there is no tax for the agricultural land in Vietnam in the past few decades. Therefore, it is a form of 'win-win' situation. Moreover, the amount of money for changing the land use purpose could be delayed for few years after the land owner finished the application. The owner will get their paper after completing payment of the tax due with the local authorities. This flexible policy has been an important factor that promotes the supply of housing land, especially the affordable land for the low and middle-income groups in Vietnam.

Some of the housing owners have had the access to their land for many years before deciding to build up their own houses. This is the common way to spread their cost for housing development. It also reflects the expectation of people of land value change. They decide to buy land for housing as soon as possible as they think the land value will increase over the years. One respondent from the interviews said that:

"I bought this piece of land since 1995. At that time, it was just agricultural land and after that I changed to residential land and then I built up. The first time I built in 2006 with one storey and after that I upgraded into two storey house in 2013" (Interview with HH 1.1, 2015).

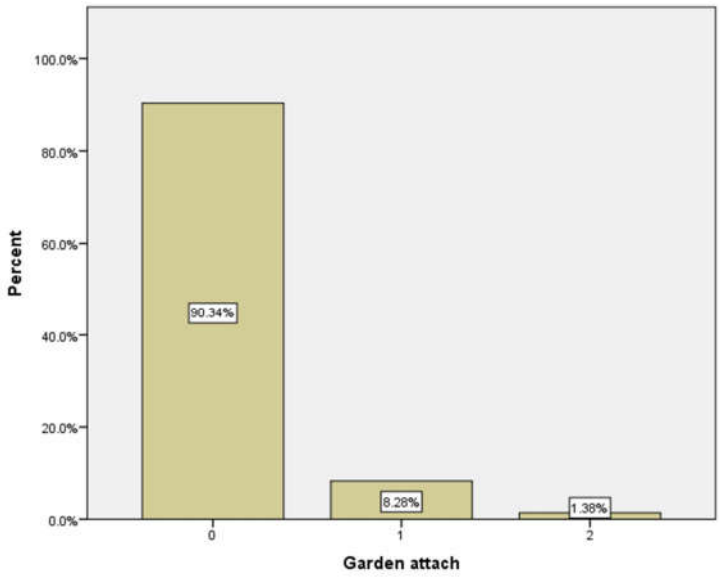
Figure 75: Land use purpose



Source: Author survey, 2014

One major characteristic of the land plot for individual housing in Vietnamese cities is that the plot is quite narrow in width and long in length (hence 'tube housing'). A typical land plot is usually 5 meters in width by 20 meters in length, which make up around 100 square meters in total. So, with such a small plot of land most of the houses are built over 100 percent of the plot, which use all the area of the land for the building without leaving any land for garden or yard. The Figure 76 shows that over 90 percent of the houses do not have any garden attached to them and under ten percent have one or two gardens, including the houses that have a garden on the roof top.

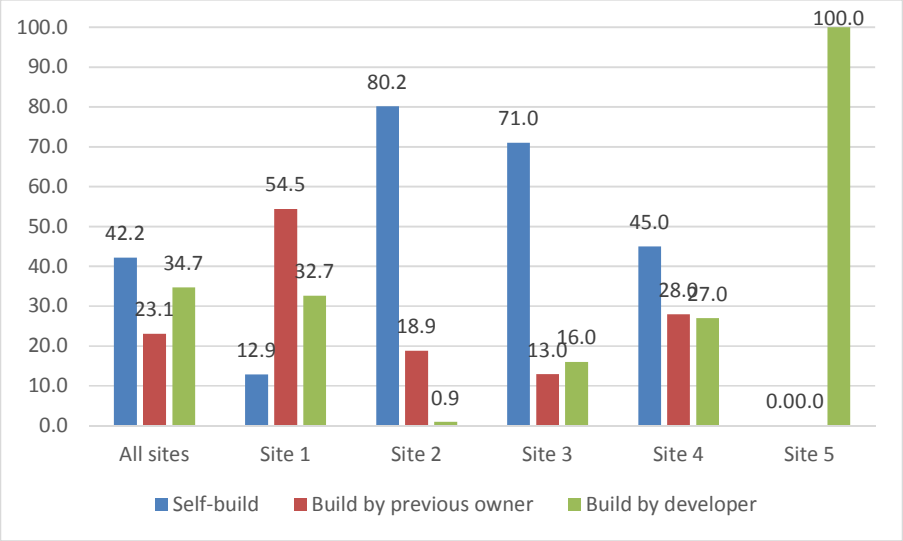
Figure 76: Number of gardens attached



Source: Author survey, 2014

In this section, we will look at the housing development process of the houses in the research sites, with a focus on the self-help housing process. First, we will look at the builder of the houses in the five research sites. Among 507 houses in the survey, 42 percent of them were built by the house owners themselves under the self-help way while another 23% were built by previous owners also under self-help way and just 35% of the houses were built by the professional developers, mainly those located in site 5 (see Figure 77).

Figure 77: House builder of the houses across five study sites

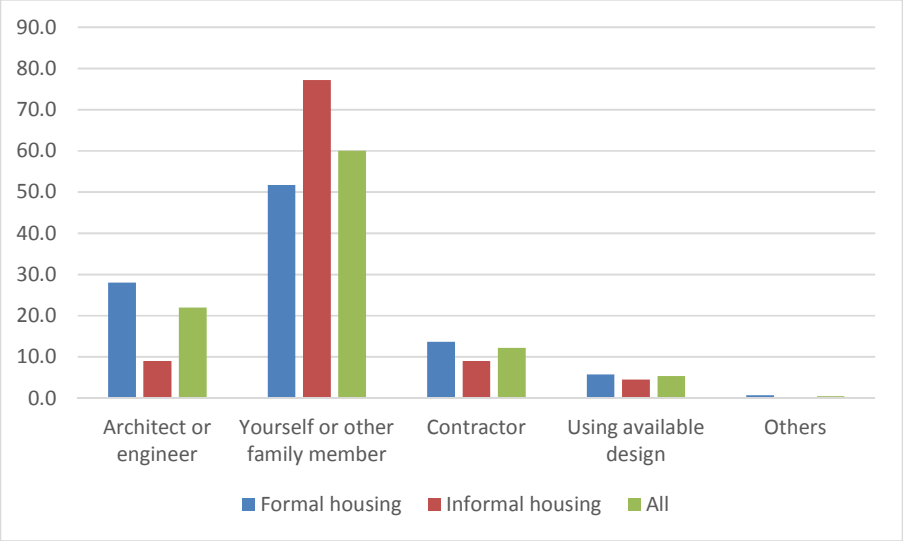


Source: Author survey, 2014

Second, among the houses which were developed by the owners themselves, 60 percent of those houses were designed by the householders, who usually did not have any training in housing design but could do some simple 'drawing' and discussed this with the contractor for a final 'design'. In practice, the contractor had to do the rest of the technical drawings in order to apply for the building permission and for execution purposes. Meanwhile, 34% of the houses were designed by professional designers such as architects or civil engineers. These professionals usually work for the private design companies and private contractors (see more detail in Figure 78).

A professional housing design often takes place after the discussion between the owner and architect or engineer. In fact, the price for such designs is not high compared to the total amount of money that house owner invests in building their new house, typically just around 2 percent of the total investment. It is usually based on the type of the house, such as villa or row house and the total floor area of the house.

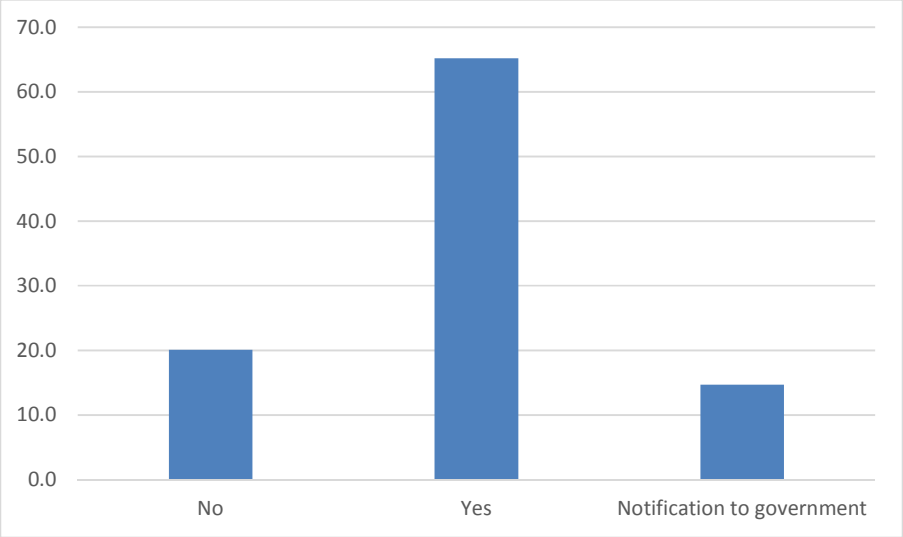
Figure 78: Designer of the self-build houses



Source: Author survey, 2014

The result from the field survey shows that only 65% of the houses were built with a legal permission (building control consent) from the local authorities at the time of construction. Besides that, there are 15 percent of the householders who did notify the local government on building their house; however, this was not a legal permission, but rather an unofficial consent from the authorities in some special cases of renovating or extending some houses. Some 20 percent of the houses were built without any legal permission at all, and most of those houses were located in the spontaneous residential sites (see Figure 79).

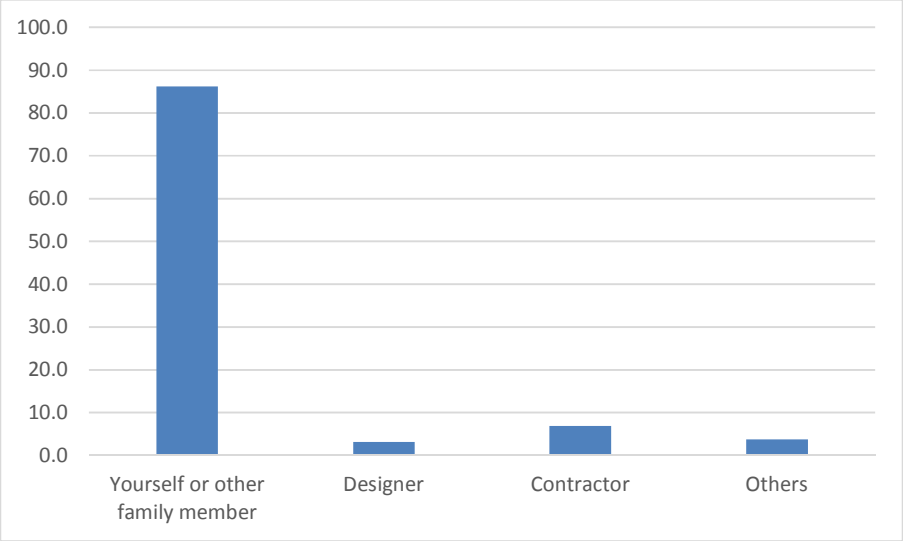
Figure 79: Building permission



Source: Author survey, 2014

As one of the interviews with a local official emphasized, the process to apply for the permission for housing building is still complicated for the urban residents, as it requires technical drawings. And the whole application process usually takes a long time to process, including the revision and re-application of the documents. However, the questionnaire surveys show that over 86 percent of the self-build householders did the application themselves and just around 14 percent of the house owners looked for help in applying building permission from professional agencies such as construction designer or contractor (see Figure 80).

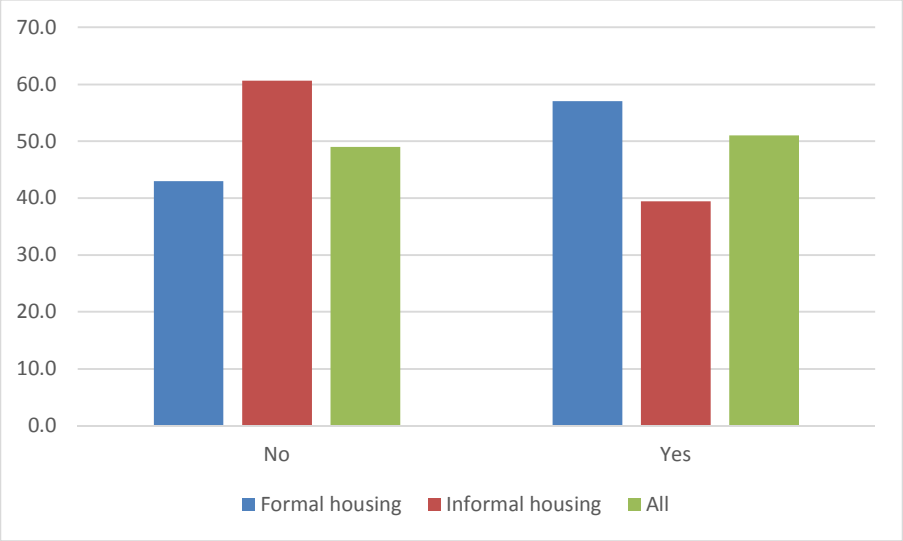
Figure 80: Person in charge of applying for building permission



Source: Author survey, 2014

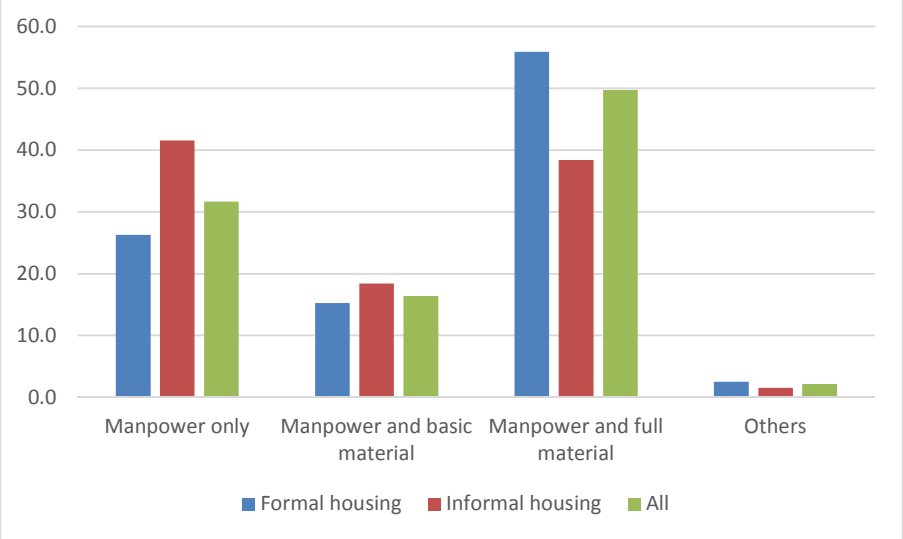
The informality in housing development is also reflected in the procurement process of building the house. Figure 81 shows that nearly 50 percent of households did not sign any legal contract with the contractors. Among those who did sign an agreement with the contractors, 32% of householders only required the manpower for building up his/her house, while 50% percent went for the full-package which included both the manpower and full material for housing construction, while another 16% only needed the basic material for their houses, as they wanted to make decisions themselves for the finishing material (see Figure 82). For the time of payment for the cost of constructing the house, many housebuilders prefer to be paid in stages many times during the construction period, as applied with 60% of the self-build households – this is usually called 'temporary supply' for the contractor in building the house (see more detail in Figure 84).

Figure 81: Building contract



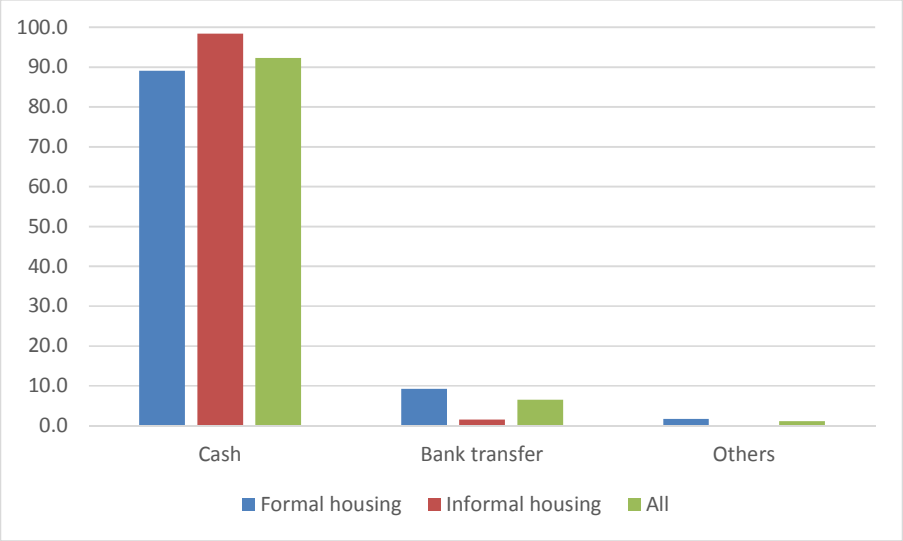
Source: Author survey, 2014

Figure 82: Type of contract



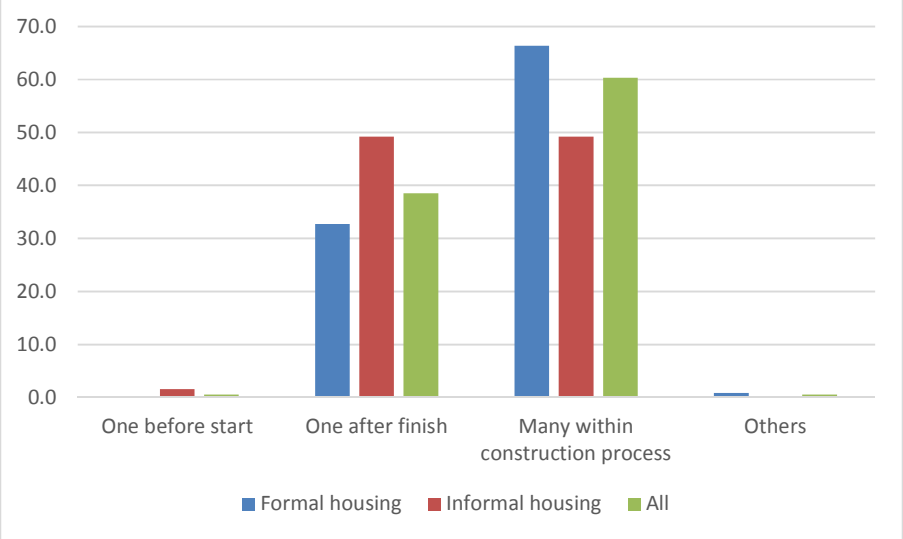
Source: Author survey, 2014

Figure 83: Payment to contractor



Source: Author survey, 2014

Figure 84: Time of payment



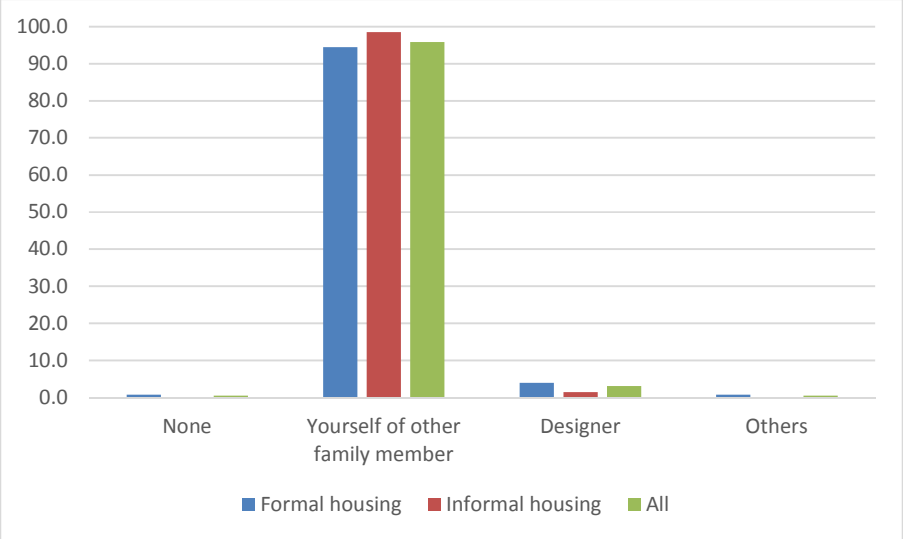
Source: Author survey, 2014

When were asked about the method of payment to the contractor only 2.4 percent chose bank transfer while 33.3 percent paid by cash and only 0.4 percent used other types of payment such as a mix of payment methods (Figure 83). It shows that the habit of using cash is still strong in Vietnam even with large amount of money in housing construction. People may avoid the fee in transferring money from different banks. Another reason is

that most contractors prefer cash in order to pay directly to construction workers every week or month.

During the construction process over 90 percent of the housing owners have supervised the work themselves to the contractor (see Figure 85). This activity could save some money for the owners as they do not hire any professional for this task such as architect or engineer. More importantly, during this supervision they could directly manage and make modify to the building as they want.

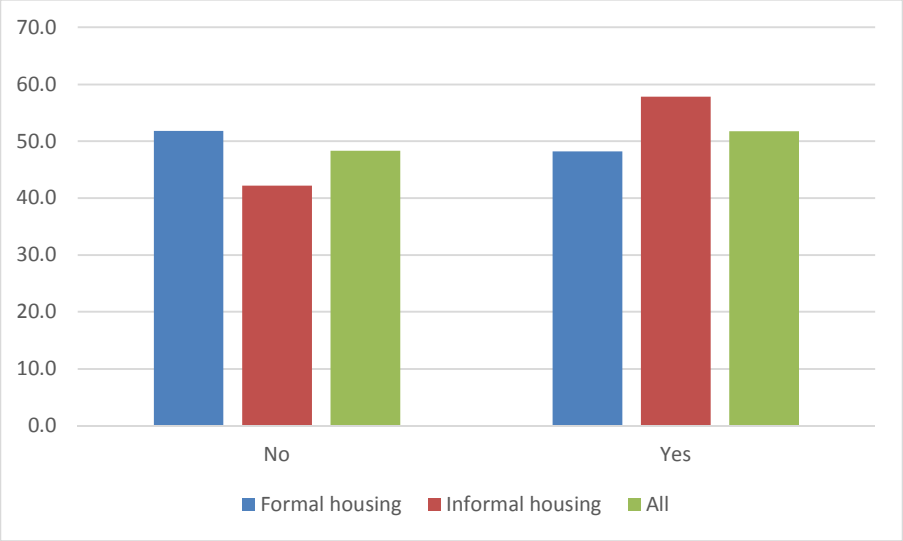
Figure 85: Supervision to contractor



Source: Author survey, 2014

Besides that, the survey reveals that the local government has operated a loose control over the self-help housing development in Can Tho city. Almost 50 percent of the houses which were developed by the owners themselves had not been checked by the local authorities during the construction process (Figure 86). Surprisingly, the percentage of houses which were checked by the local authorities is not much different between the formal and informal sites, despite the fact that most of the houses in the informal sites were developed spontaneously and usually without permission from the local government.

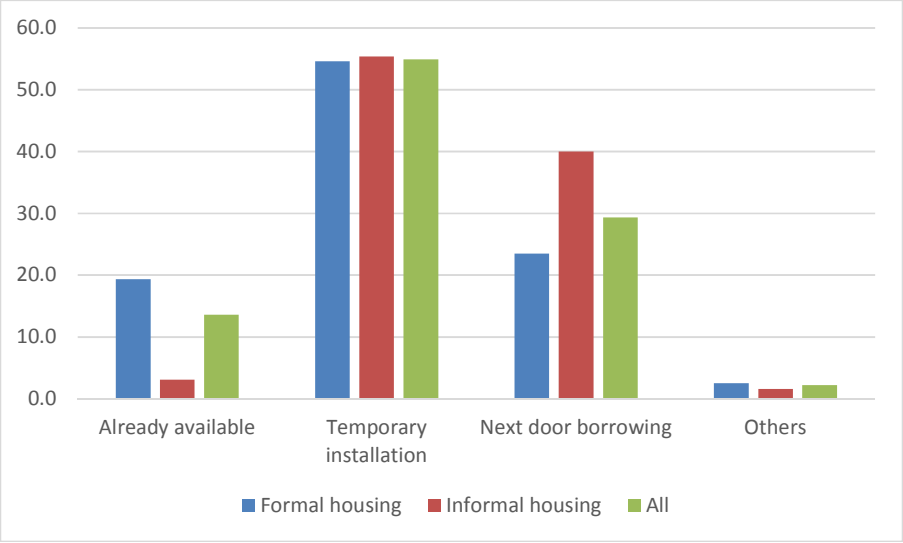
Figure 86: Government check



Source: Author survey, 2014

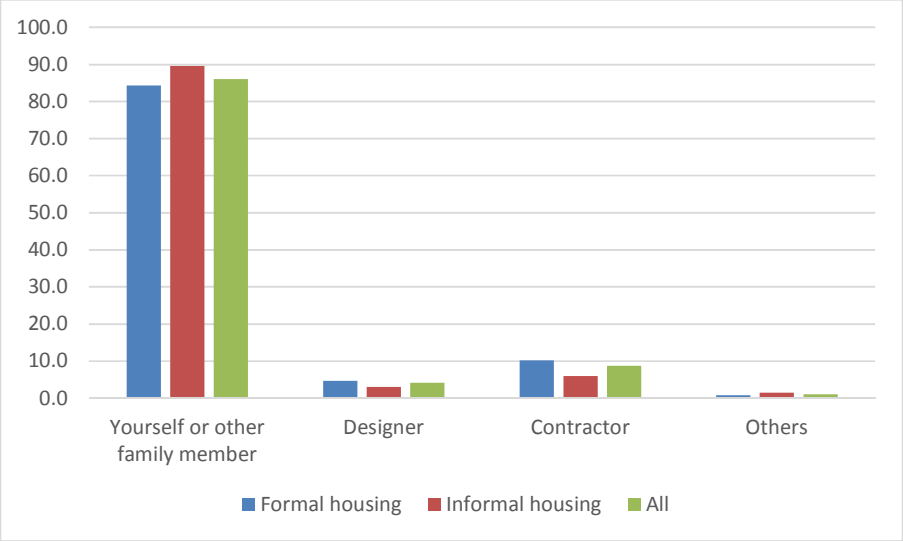
Some essential needs for the construction process, such as electric power and water, were supplied to the housing sites by different ways. Figure 87 shows that over 50 percent of the construction sites were supplied temporarily by the local authorities and these meters would be permanently placed during the finishing process of the buildings. We can see that in the informal site, almost 40 percent of the owners had to buy power and water from their neighbours for the housing construction process, while in the formal sites almost 20 percent of them already had these facilities available.

Figure 87: Source of power and water for construction



Source: Author survey, 2014

Figure 88: Material decision making

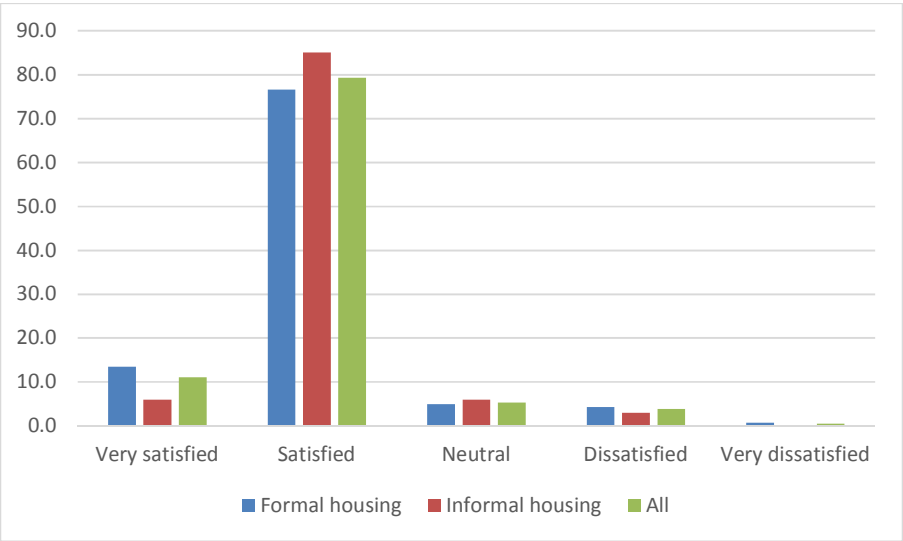


Source: Author survey, 2014

As discussed in the previous sections, the self-help housing owner has played the key role in the development process. Figure 88 shows that nearly 90 percent of owners had decided the material by themselves including both the raw and finishing materials for building the houses. While in a relatively few other cases house materials were chosen by professionals such as designer or contractor.

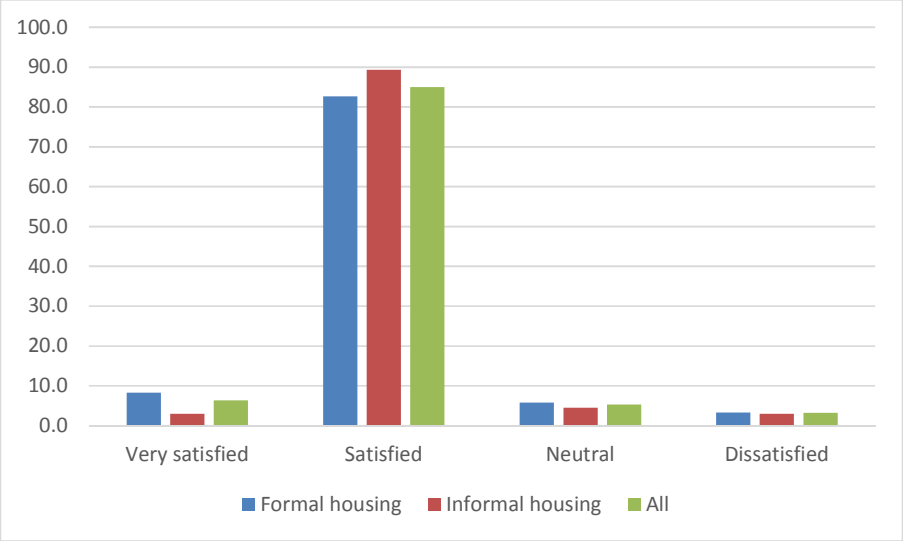
- *Analysis of self-build housing satisfaction*

Figure 89: Design satisfaction



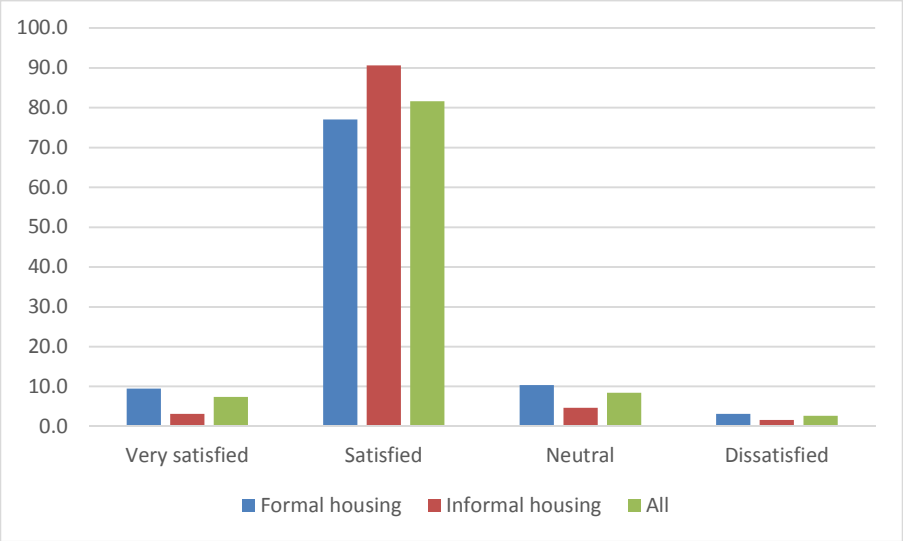
Source: Author survey, 2014

Figure 90: Building satisfaction



Source: Author survey, 2014

Figure 91: Overall satisfaction of the self-build process



Source: Author survey, 2014

When were asked about satisfaction of the self-help housing builders, the overall satisfaction of the owners when building their own house is quite high with the mean score 2.06 despite that their houses were designed by professional or by themselves.

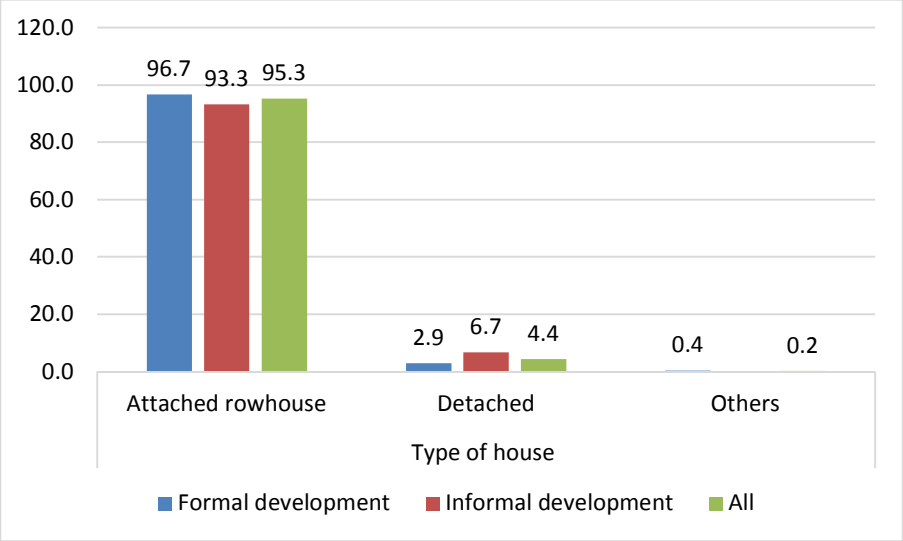
The researcher used the non-parametric tests to identify the significant difference between the formal and informal groups; and among the different groups of self-build

housing by different designers of the houses. The statistic results show that there is no significant difference between formal and informal groups in terms of satisfactions on the design (p=0.344), construction (p=0.537) and overall development process (p=0.867). However, between the different groups of designers of the houses there are significant differences between the satisfactions of people on the design (p=0.015), and overall development process (p=0.024), but not the construction process (p=0.173). It implies that professional housing design could improve the satisfaction of self-build housing owner.

7.6 Physical structure of self-help housing development

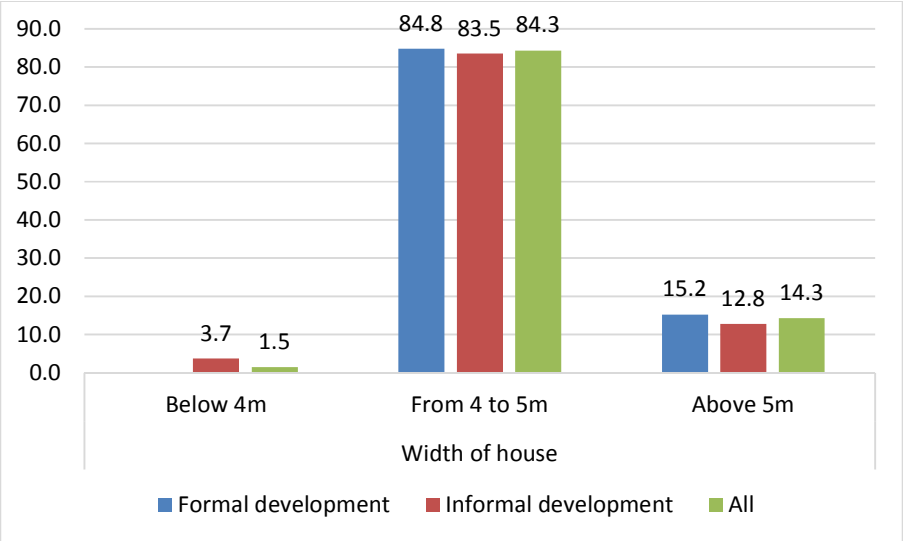
This section discusses the physical structure of the houses which were developed in the Can Tho city in recent years under the self-help scheme. Thus, the data for this analysis does not include the samples in site 5, which are pre-build housing developments. The aim of this section is to understand the attributes of the house that have impact on the residents' living conditions, and the differences between the housing characteristics of the formal and informal housing developments. The Figure 92 shows that attached row-house is the dominant and the most preferable type of housing in the new housing developments in the past ten to fifteen years in Can Tho city, accounting for over 95 percent of the houses in both the formal and informal development schemes. However, in the formal development, detached house is more in favour than in informal one (6.7 percent versus 2.9 percent, respectively). The most common width of the row-house is from 4 to 5m (around 84 percent), with only a few examples informal housing which were developed in recent year which are under 4m in width (see Figure 93).

Figure 92: Type of house



Source: Author survey, 2014

Figure 93: Width of house

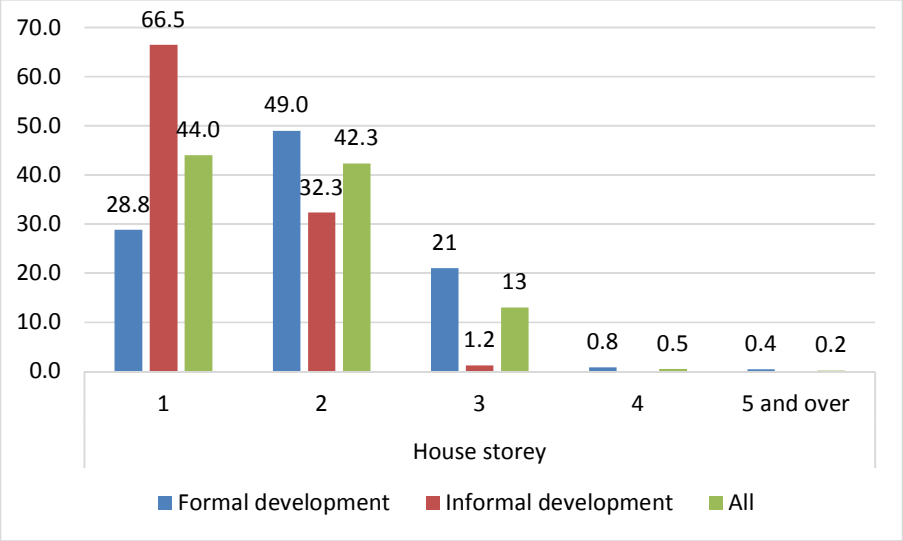


Source: Author survey, 2014

Another important characteristic of housing, especially given the predominance of row housing, is the height (number of storeys). Figure 94 shows the contrast between the houses in formal and informal developments. While most the informal houses have only one-storey (66.5 percent), some with two-storey (32.3 percent), and very few in

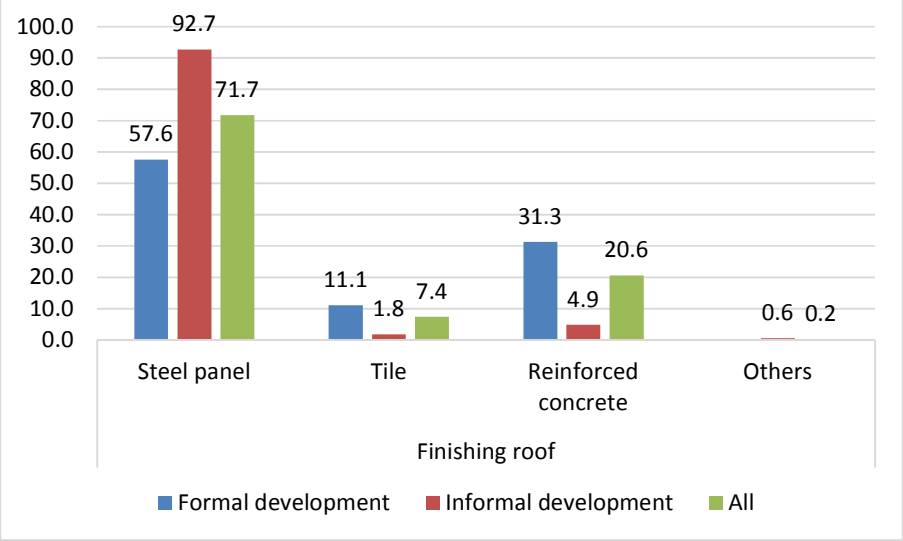
three-storey (1.2 percent); most of the formal housing was designed and built with two-storey or more (over 71 percent) and only 28.8 percent is one-storey house.

Figure 94: House storey



Source: Author survey, 2014

Figure 95: Finishing roof



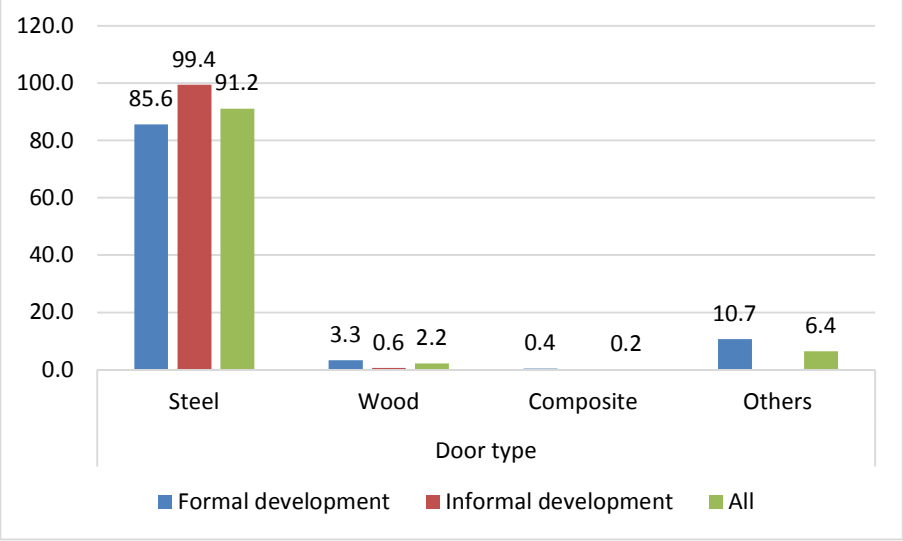
Source: Author survey, 2014

Most of the houses in new neighbourhoods in Can Tho city have a roof in steel panel, as this is the most affordable material in the market. Steel panel is also a light finishing material and thus does not put much weight on the frame structure and the

foundation of the house, so the owners could save much money compared to other types of roofing material such as tile or concrete. However, a significant number of formal housing owners (31.3 percent) preferred the reinforced concrete roof as it could provide more space for their house such as a roof garden or playground or it could be a preserved space for future extension or upgrading the house (see more detail in Figure 95).

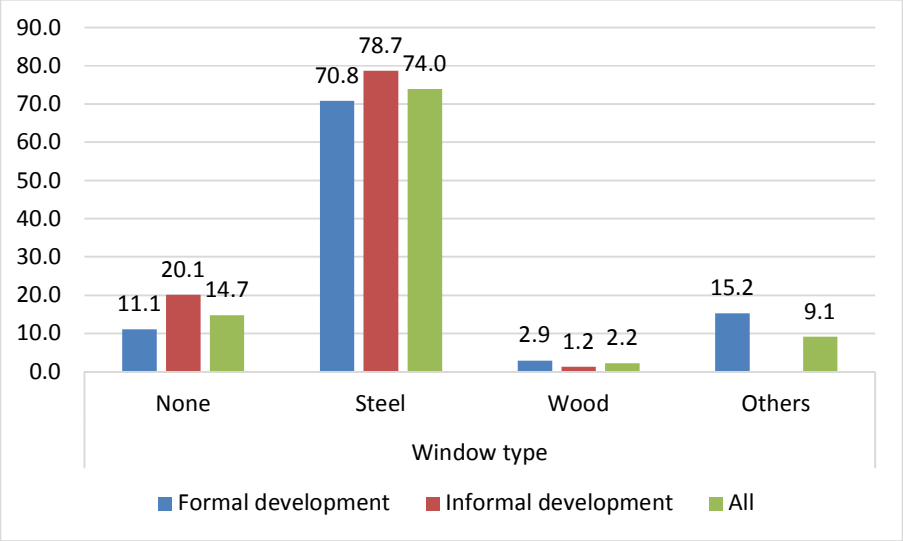
Figure 96 and Figure 97 show that the use of steel for making doors and windows is quite popular, due to its affordable price and durability compare to other wooden or aluminium doors and windows.

Figure 96: Door type



Source: Author survey, 2014

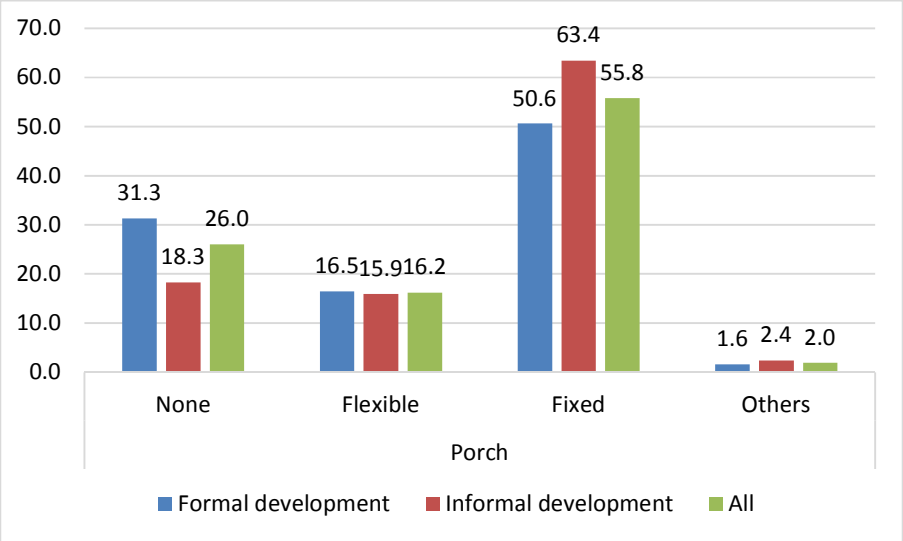
Figure 97: Window type



Source: Author survey, 2014

Figure 98 shows the high rate of household have attached one or more porches attached to the building when developing their houses (74 percent). Most households preferred a fixed porch in both the formal and informal sites. Porch is quite common in Can Tho city as it could be used as an extension, an extra space of the house, or simply as a cover of the main door from the rain.

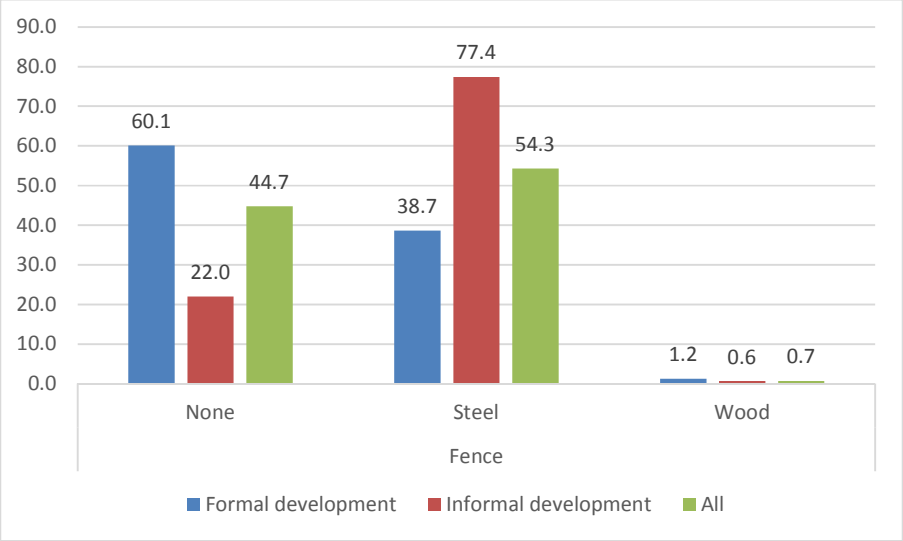
Figure 98: Porch attach



Source: Author survey, 2014

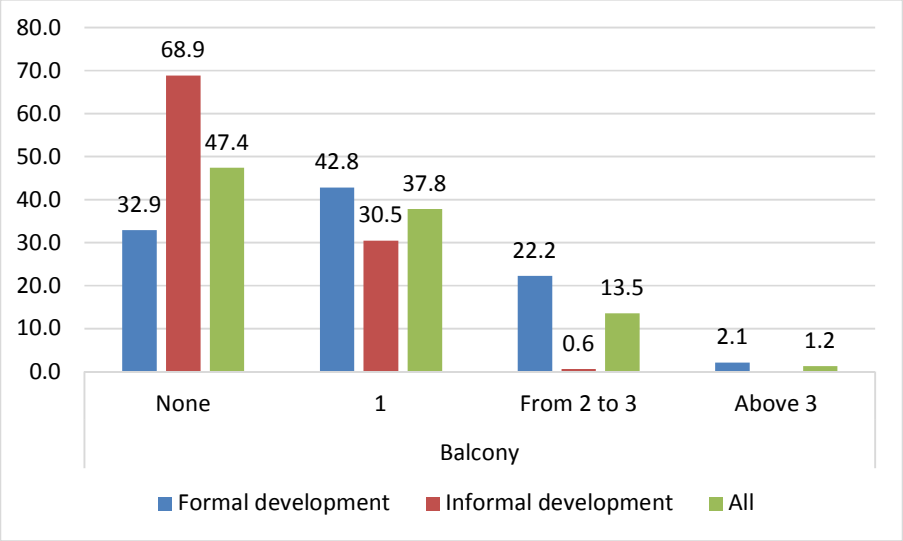
Figure 99 and Figure 100 reflect the differences between the fence and balcony preferences of the formal and informal self-build housing in Can Tho. We can see that the number of houses with fences in informal housing site is much higher than in formal site. This could be explained by the strict regulation of the formal housing site that do not allow people to have a front yard or a fence, while in the informal site house owners could design their houses as they want because there is no or very limited building regulations. As mention earlier, multi-storey tube house is the dominance type of housing in Can Tho. So, balcony is also one of the favour of house owners when building their houses. However, Figure 100 shows that most of the informal houses do not have any balcony (over 68 percent). It implies that most of these houses are one-storey house only. While over 67 percent of the formal houses have at least one balcony.

Figure 99: Fence



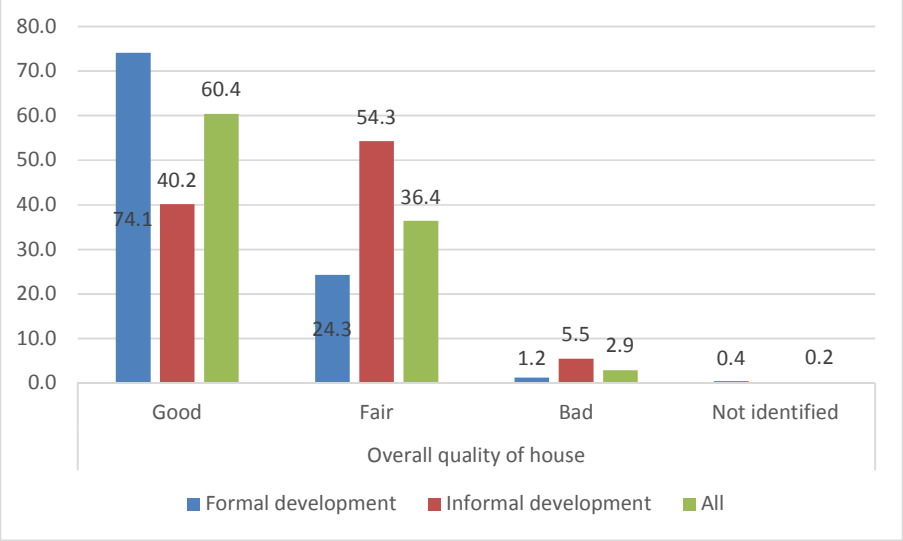
Source: Author survey, 2014

Figure 100: Balcony



Source: Author survey, 2014

Figure 101: Overall quality of house



Source: Author survey, 2014

Figure 101 gives a general assessment of the overall quality of the self-build houses in the research sites. As, most of the house were developed within the past fifteen years, so most of them are still in fair or good condition. Only 2.9 percent of the houses are in bad condition, which are mostly located in the informal sites. We can see the significant different between the housing quality of the formal and informal type of house.

Most of the formal self-build houses are in good quality (over 74 percent), while only 40 percent of the informal houses are in good quality.

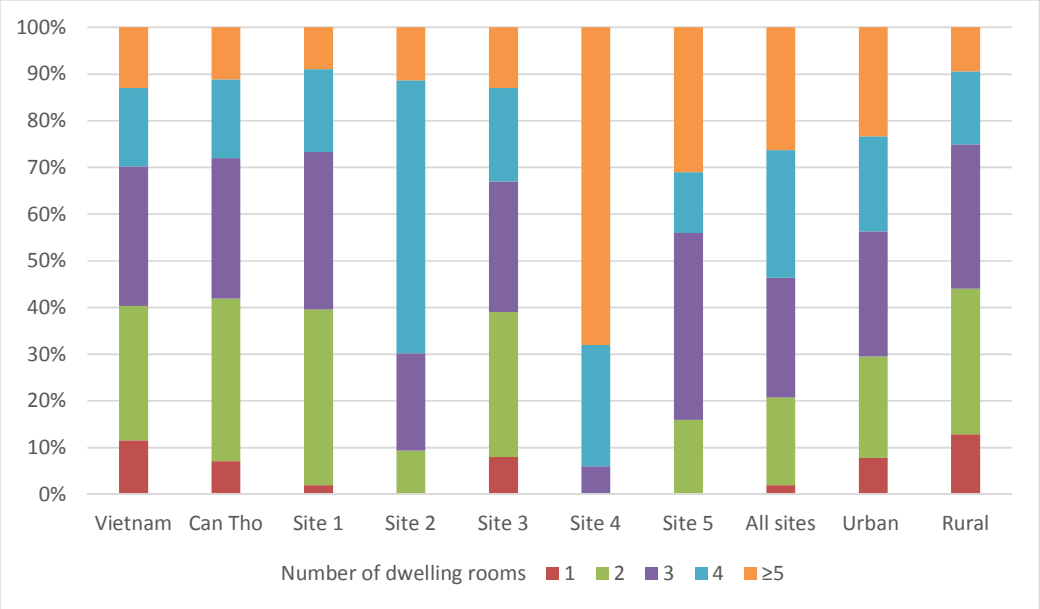
Table 28: Housing characteristics in Vietnam, Can Tho and five research sites

	Vietnam	**Can Tho**	**Site 1**	**Site 2**	**Site 3**	**Site 4**	**Site 5**	**All sites**
Average housing floor space (square meter)	94.6	93.2	96.6	104.2	97.6	205.3	157.0	131.7
Average number of dwelling rooms	3.2	3.1	3.0	3.8	3.1	5.4	3.7	3.8
Average number of bedrooms	2.0	1.7	2.28	2.05	2.33	3.24	2.21	2.4
Average number of persons in household	4.6	4.8	4.1	4.4	4.6	4.6	4.5	4.4

Source: Housing Census 2009 and Author survey 2014; *Unit*: percent

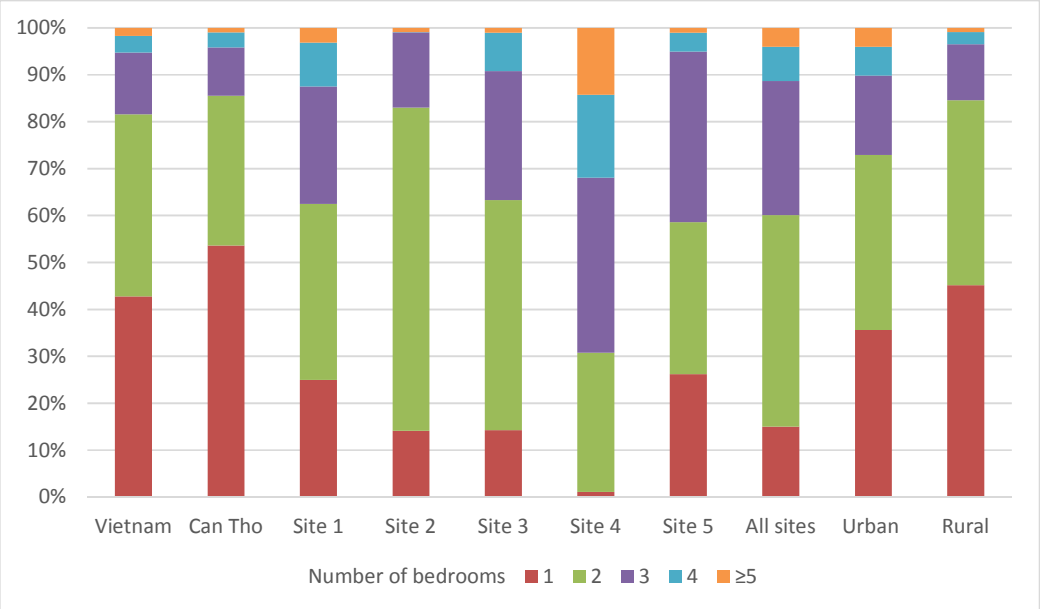
Table 28 shows the main characteristics of the house including average floor space, average number of dwelling room, bedroom, and the average number of persons in household. It is expected that when the level of formality of the residential area increase people would invest more money in building their houses. Site 4, which is a new urban residential area, has the highest average housing floor space with 205 square meter while site 1, which is a spontaneous residential area, has the lowest average housing floor space with only 96 square meter. However, even in the most informal spontaneous residential area, the average housing floor space is still higher than the average of the city and the whole country also. Although there is no significant different in the average number of person in household between the five sites, the average number of dwelling room and bedroom in site 4 is much higher than the other sites. It implies that living standard in formal housing site is much higher than in informal sites in terms of living space. Looking deeper in the detail number of room in the house, from the Figure 102 and Figure 103, we can see the detail in the differences between the internal structures of the houses in each residential site.

Figure 102: Distribution of number of dwelling rooms



Source: Housing Census 2009 and Author survey 2014

Figure 103: Distribution of number of bedrooms



Source: Housing Census 2009 and Author survey 2014

7.7 Analyzing the perception and preference of urban residents and institutions on housing development

- *The views of local officials on housing development in CTC*

From the interviews with local officials, it is clear that most of the government official respondents agreed about both the 'good' side and 'bad' side of the existing housing development in Can Tho city. On the good side, such kind of housing approach could satisfy the need of people in different groups of income people from low to high. Moreover, it improves significantly people's living conditions and living space with the best fit to their financial capabilities. However, they also realized the bad side of spontaneous housing development in the city which could lead to the long-term problems in city development. An official from the Can Tho DoNRE said:

> "Generally speaking, now the pre-build or self-build housing projects have both the good side and bad side in parallel. For example, [in the case of] houses within the projects which were built up for sale to people, by that [approach] you can manage the overall urban appearance and ensure the [achievement of] standards that are intended and planned for those areas by the government. While the self-build housing of course can serve the demand of people exactly [at] the level that they could afford. But with such kind of self-help housing, the urban appearance will not be ensured within the spontaneous areas and it is difficult to ensure for the long term of governmental administration." (Interview with Official 03, October 2015)

Another official from the Can Tho DoC thought that people were helping themselves with spontaneous self-help housing build but was also concerned on the effect of those houses on the city planning and management. He said:

> "Both of them have the good and bad side also. If we talk about the good side of the pre-build housing and housing that was built in the formal residential areas, those houses were planned in detail with [in] the developing direction for each city. The residents are gathered so that the issues on livelihood and society would be more improved. If we talk on the self-build housing, because the problem is [that] people are helping themselves, so it does not follow the general plan of the local departments of the city, so it will be difficult for the urban management task and [more] widely it will affect the other social issues and infrastructures [needs] could not be met, [these areas will be] difficult to manage and difficult to serve well for the development of the city in the future." (Interview with Official 04, October 2015)

- *Analysis of the financial aspects of self-help housing development*

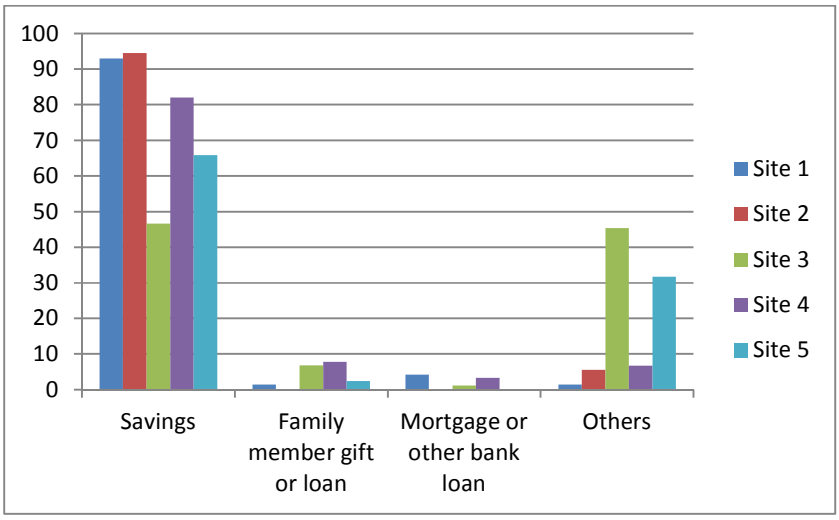
Among the survey households, 42 percent of the houses were developed under the self-build scheme, while some 23% were built by previous owners which also under this scheme, and only 34% of the houses were built by professional developers which is the dominant housing type in site 5 (please refer to Figure 77). The dominance of the self-build scheme reflects the owner preferences in building their own house rather than a house developed by the developer, because during the development process they would have the right to design, modify and make decisions to add in or cut out whatever they want with their houses. That explains why the satisfaction of the owners is quite high. It also implies that people could make a flexible financial plan for building their houses even without formal credit support.

From Figure 104, we can see that most of the money for building the house comes directly from family savings. Just a small amount of money for housing development comes from bank loan or mortgage (less than 5%). Due to the lack of a proper financial support system in housing development, most people put their saving money in their bank accounts, which will be spent on land buying and housing construction when they reach the sufficient amount to do that, while just a few percent of households from all the sites had support from their family members or from the mortgage or other bank loan. We can also see a high percentage, which are from over 30% to 45% of households in site 3 and site 5, indicated their source of money for housing were from other source, which was the money that they received from the compensation for their land and house from the eviction to take back the land for developers to build up the new residential area in site 5 or other public development projects in site 3.

Figure 105 shows the general background of the household income in the five research sites. It has an important impact on the development of the houses in terms of area, quality, and value. It is as expected that households in the less formal self-help housing site (site 1) have the lowest monthly income (over 30 percent only have under 5 million VND/month) and household in the most formal self-help housing site (site 4) have the highest monthly income (over 80% have more than 10 million VND/month). Meanwhile the percentage of household income in the pre-build housing site (site 5) is more balanced, which implies that there is a better integration of income groups in this

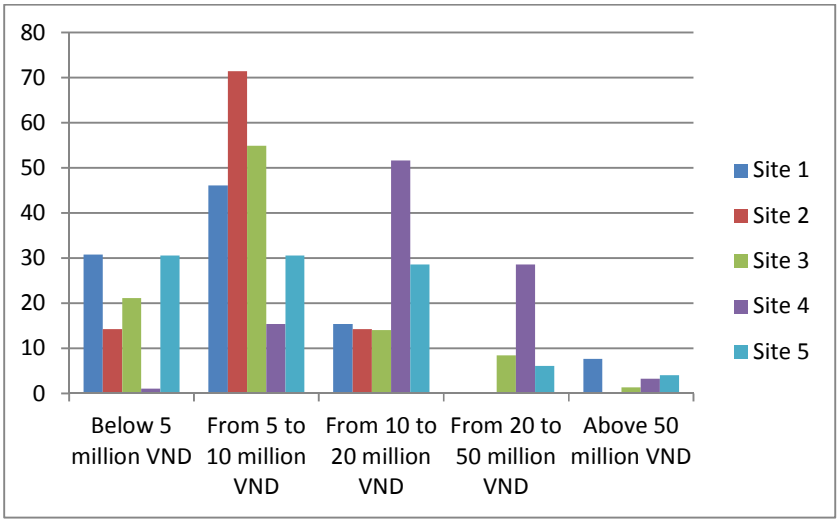
residential area compare with the other self-build housing sites, which are much more segregated in terms of spatial location of residential site within the city.

Figure 104: Source of money for housing between sites



Source: Author survey, 2014

Figure 105: Household income between sites



Source: Author survey, 2014

7.8 Conclusion

This chapter has discussed the main characteristics of self-help housing that had been developed in Can Tho city in the past fifteen years. It has also explored the perceptions and housing preferences of both the residents and institutions. Thus, the evidence and material presented and reviewed in this chapter has contributed significantly to answering the second research question on the aspects of the forms and identities of new housing development in VMDR cities. It has revealed the contrast between the houses in formal and informal sites in terms of size and quality and its relation to household income. It found that most of the houses both in formal and informal sites were built by using household's savings. The high satisfaction of self-help builders has also been found. Although most of the houses were designed by owners themselves, however this study found that professional design could improve the satisfaction of self-build housing owner significantly.

CHAPTER 8: HOUSING DEVELOPMENT AND ENVIRONMENTAL CONCERN

8.1 Introduction

Another important issue that affects housing development in this city is flooding especially in the context of CC and SLR as mentioned in Chapter 1. This chapter discusses further some key environmental issues with housing development in Vietnamese cities with a particularly focus on the VMDR in which Can Tho city is located. The discussion is also supported by reference to findings from the household questionnaire and interview surveys. In dealing with these global climate change issues, there are two different approaches which have been framed by scientists and policy makers: mitigation and adaptation (Biesbroek et al., 2009). As mentioned in the introduction chapter, this research focuses mainly on the adaptation pathway in housing and urban development in Vietnamese cities in a qualitative approach.

Figure 106: Relative vulnerability of coastal deltas as shown by the indicative population potentially displaced by current sea-level trends to 2050

Note: Extreme = >1 million; High = 1 million to 50,000; Medium = 50,000 to 5,000

Source: IPCC (2007)

Nowadays, more than half of the world population is living in urban areas, and there is still a rapid and unprecedented movement of people from rural to urban environments. Since metropolitan areas are densely settled and typically in low-lying areas, the potential scope to move people from the coast is very slim when these areas

were predicted to be affected heavily by climate change and sea level rise. According to a report of the IPCC in 2007, there would be three coastal deltas, including the VMDR, that will be extremely affected by sea level rise with over one million people expected to be displaced by the inundation (see Figure 106). Further, there is currently little urban planning research that combines scientific knowledge about climate change and its likely effects on the plans and designs of cities or suburbs (Blakely, 2007). However, many scientists and policy makers believe that urban planning can contribute to reducing vulnerability to the impacts of climate change in urban areas (Czakó, 2013, Gu et al., 2011, Hurlimann et al., 2014, Stead and Taşan-Kok, 2013, Wamsler et al., 2013). Besides that, Blakely (2007) argued that urban planning implications could be reflected in buildings, street networks and community design for more environmentally sustainable cities. The urban science related to climate change and its implications for human settlement is still in its early stages and limited in its coverage.

An IPCC report in 2007 showed that human activities that contribute to Climate Change mostly came from city areas. Urban activities generate almost 80% of all CO2 and significant amounts of other greenhouse gases. Direct emissions come from activities such as energy generation, vehicles, industry and the burning of fossil fuels and biomass in households. On the contrary, cities are also vulnerable to climate change that can give rise to problem such as inundation of large delta areas, saltwater moving upstream into freshwater rivers, uncontrolled air pollution, typhoons and floods (IPCC, 2007).

Thus, in recent years, there is a growing acknowledgement by scientists and policy analysts that a substantial part of the global warming challenge may be met through the design and development of the cities. The form and function of human settlements can either reduce or increase the demand for energy, and can also influence how energy is produced, distributed, and used. Condon et al. (2009) argued that urban form factors could play an important role in climate change mitigation as it could reduce the use of fuel when world population and economic activity increase. However, urban planners and local decision-makers generally lack the tools and means needed to make informed choices about the climate change implications of local growth and redevelopment decisions, or to measure the effects of those decisions (Condon et al., 2009). Therefore, such research contributes some qualitative and survey evidence for planning authorities in developing countries on urban and housing development in coping with the current and potential risks of inundations.

Besides that, urban governance has also faced a difficult challenge in taking on an urban adaptation strategy to climate change. Birkmann et al. (2010) introduced the concept of 'adaptive urban governance'. They argued that urban adaptation strategies and discourses needed to deal more strongly with processes and the knowledge base on how to improve adaptive capacities and adaptive planning, rather than focusing solely on a list of options to adjust physical structures and the built environment (Birkmann et al., 2010). Planning to adapt to climate change is therefore becoming increasingly important. However, the purpose of planning is not only to prepare for the future, but also to create more desirable futures (Myers and Kitsuse, 2000). So, this research attempts to contribute some understanding in the process of policy making for urban governance in Vietnamese cities in coping with climate change.

Risk is defined as the product of the three vectors: hazards, vulnerability, and adaptive capacity (Rosenzweig and Solecki, 2001). Climate risks can be understood as risks associated with variables in the climate/weather system which may affect human life adversely (Firman et al., 2011). Few and Tran (2010) used a qualitative approach in low-income communities in the Central Provinces and the Mekong Delta in Vietnam to examine how the social dimensions of vulnerability can come into play in the generation of health outcomes associated with hazards. It explored particularly how aspects of economic livelihood, physical location, education and protective behavior combined to influence the exposure and susceptibility of households, as well as to shape their capability to avoid adverse health impacts.

Other risks, such as hurricane and tsunami, are low compared to the neighbouring countries, because Vietnam lies between the Philippines to the East, which suffered heavily from the Haiyan typhoon in 2013, and Thailand to the West and Indonesia to the South West, which were devastated in 2004 tsunami. However, tropical storms are still very common in Vietnam every year, and usually hit the central region of Vietnam which is the most vulnerable region in the country due to the high portion of low-income households.

8.2 Climate change and sea level rise risks in VMDR

Nowadays, academics and experts are getting more concerned about the climate change issues. Rising global temperatures, largely the product of human activity, are likely to have severe and potentially catastrophic effects on both the earth's natural

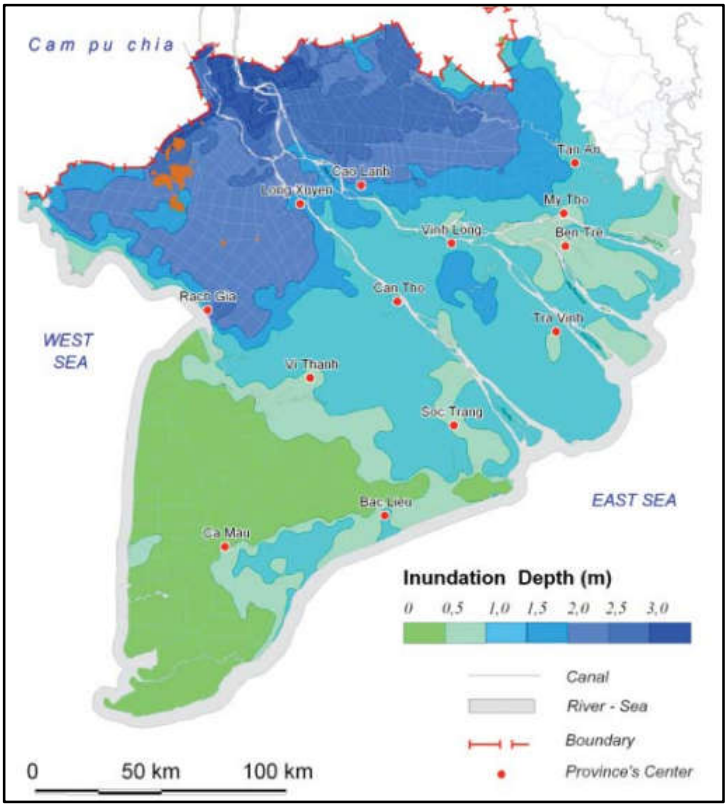
systems and human society. Sea level rise and dramatic changes in weather patterns, predicted as a consequence of sustained global warming, could accelerate the disruption of economic systems, dislocation of coastal communities and port facilities, shortages of food and water supplies, increases in disease, additional health and safety risks from natural hazards, and large scale population migration (Condon et al., 2009). Recent studies showed that climate change has already affected the VMDR (Tri et al., 2012, Hoa et al., 2007). In a recent report of the International Panel on Climate Change, the VMDR ranks amongst the top three deltas in the world most likely to be severely affected in terms of CC and SLR (IPCC, 2007).

In another recent World Bank study, Dasgupta et al. (2009) has shown that Vietnam is among the countries most seriously affected by Climate Change. Of the 84 coastal developing countries investigated in terms of SLR, Vietnam ranks first in terms of impact on population, GDP, urban extent, and wetland areas, and ranks second in terms of impact on land area and agriculture (Dasgupta et al., 2009).

There are two big river deltas in Vietnam: the Mekong River Delta and Red River Delta. A recent study showed that over ten percent of Vietnam's population, who are living in the two river deltas, would be affected by an SLR of just 1m (Dasgupta et al., 2009). Besides that, the IPCC said that a 1m SLR in Vietnam would lead to flooding of up to 20,000km2 of the Mekong River delta and 5,000km2 of the Red River delta. In the Mekong River Delta alone, more than 1 million people would be directly affected (IPCC, 2007).

Figure 107 shows the projected situation for inundation in the Mekong River Delta with a 30cm sea level rise by 2050, assuming no additions to current hydraulic structures. Hydrodynamic simulations by the Southern Institute of Water Resources Planning were used to estimate the changes in sea inundation from 2000 to 2030 and 2050 on the assumption of a sea level rise of 17 cm by 2030 and 30cm by 2050. The result showed that in 30cm sea level rise scenario by 2050, the area inundated to a depth greater than 0.5m would increase from 2,813,000 ha to 3,089,000 ha net increase of 276,000 ha, or about 10 percent. Sea level rise would also increase the area in the Mekong River Delta affected by salinity intrusion, which could lead to the situation that more and more people has to migrate to urban areas due to the decrease of land and jobs in rice farming (WB, 2010).

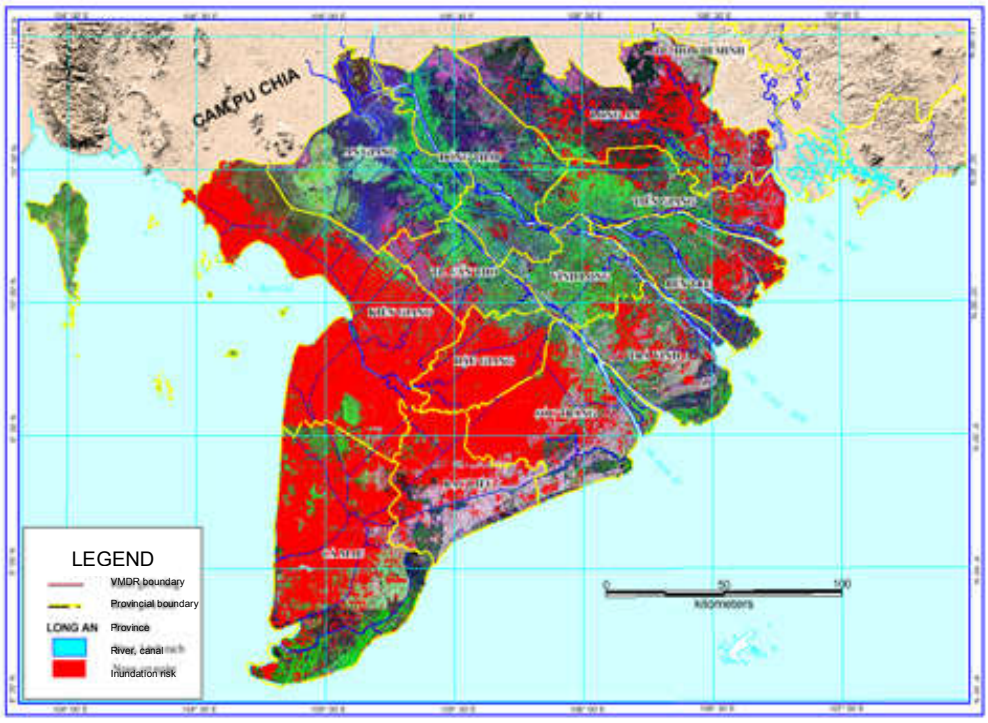
Figure 107: River flood inundation in the scenario with 30cm Sea Level Rise in the Vietnamese Mekong Delta Region



Source: WB (2010)

In Figure 108, we can see the scenario of 1m SLR inundation of the VMDR in 2100. There would be significant land lost in the VMDR (areas in red colour) due to the inundation by SLR. All of the coastal provinces in the VMDR would be affected heavily by SLR. Few other inland provinces and city such as An Giang, Dong Thap, Vinh Long and Can Tho would be affected by both the Mekong River flood and SLR. According to the Mekong Delta Region Plan, these flood risk and SLR risk are ranked from very low to very high. So, with over 17 million people living in the VMDR, inundation risk would be a severe challenge for the future of the VMDR including urban planning and development (see more detail in Table 29).

Figure 108: 1m sea level rise scenario and the affected land in the VMDR



Source: Can Tho Climate Change Coordination Office, 2013

Table 29: 12 provinces and 1 city in the Vietnamese Mekong Delta Region and the risk of inundation

Province and City	Population (person)	Urbanization (%)	Total Housing (dwelling unit)	Urban Housing (dwelling unit)	Rural Housing (dwelling unit)	Flood Risk	SLR Risk
Kien Giang	1,688,000	27	382,000	100,000	282,000	3	4
Long An	1,436,000	17	365,000	66,000	299,000	4	2
Tien Giang	1,672,000	14	436,000	61,000	375,000	3	3
Dong Thap	1,666,000	18	408,000	75,000	332,000	4	1
An Giang	2,142,000	28	507,000	144,000	362,000	4	1
Can Tho	1,188,000	66	281,000	187,000	93,000	3	2
Soc Trang	1,292,000	19	301,000	60,000	241,000	1	4
Bac Lieu	856,000	26	189,000	50,000	138,000	1	4
Ca Mau	1,206,000	20	282,000	59,000	223,000	1	4
Ben Tre	1,255,000	10	354,000	35,000	318,000	1	3
Tra Vinh	1,003,000	15	243,000	36,000	206,000	1	3
Vinh Long	1,024,000	15	268,000	42,000	226,000	2	2
Hau Giang	757,000	20	185,000	37,000	148,000	2	2
Total	17,185,000	23	4,201,000	952,000	3,243,000		

Note: Risk scale from 1-Very Low; 2-Low; 3-High to 4-Very High. *Source*: author compiled from 2009 Population and Housing Census and Mekong Delta Region Plan

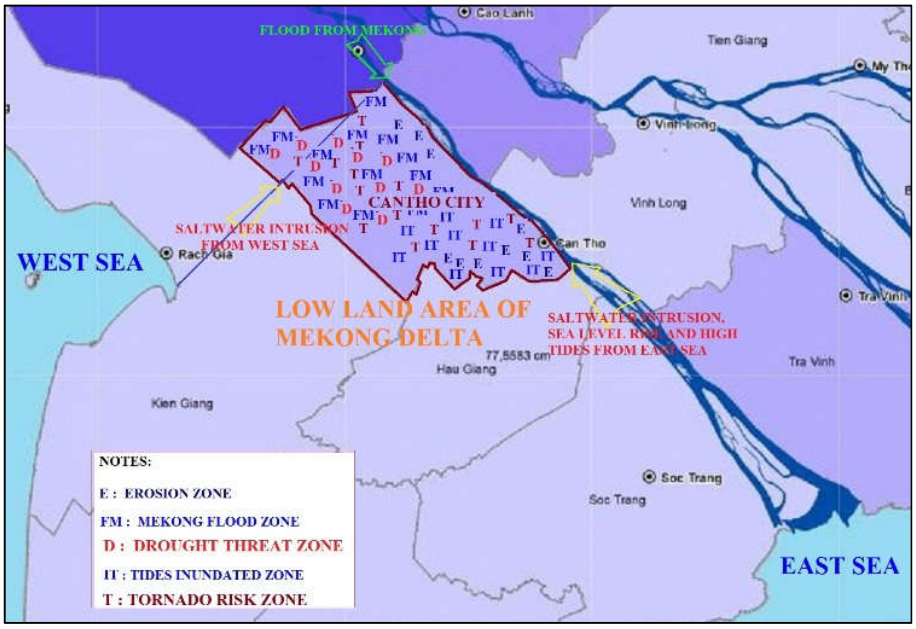
8.3 Flooding risks in housing development in Can Tho city

In a research on the effects of flooding on urbanization, Huong and Pathirana (2013) found that there are two types of areas in the Can Tho city which have significant flood hazard from the river high tide and local heavy rainfall. They predicted some worse scenarios which combine the 1m SLR, increase of flow in Mekong River and local change due to urbanization which could lead to a 1.5m inundation for the city.

Figure 109: Pictures of the Can Tho city's inundations

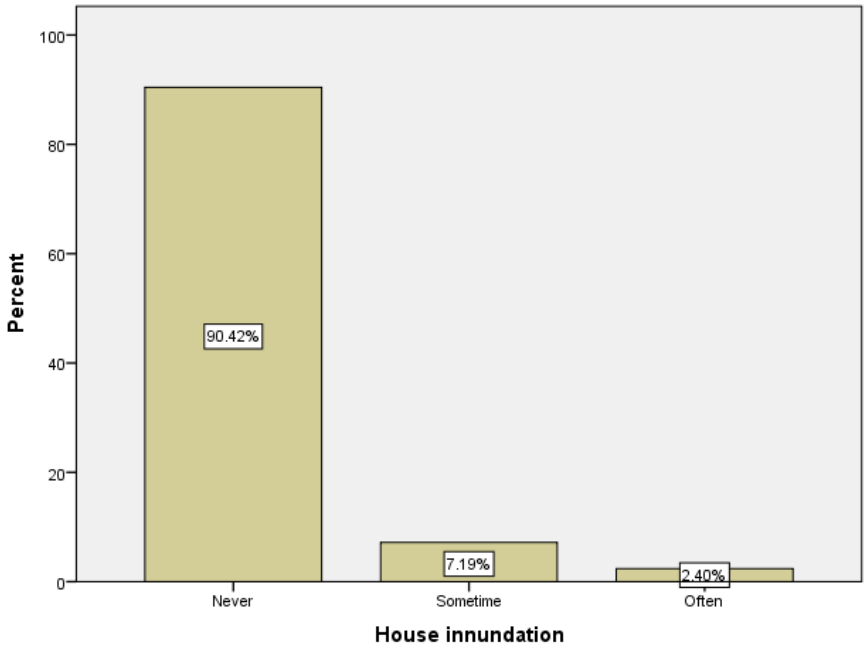
Source: Vietnam News Agency, 2015

Figure 110: Map of climate risks in Can Tho city



Source: Can Tho Climate Change Coordination Office, 2013

Figure 111: Household inundation



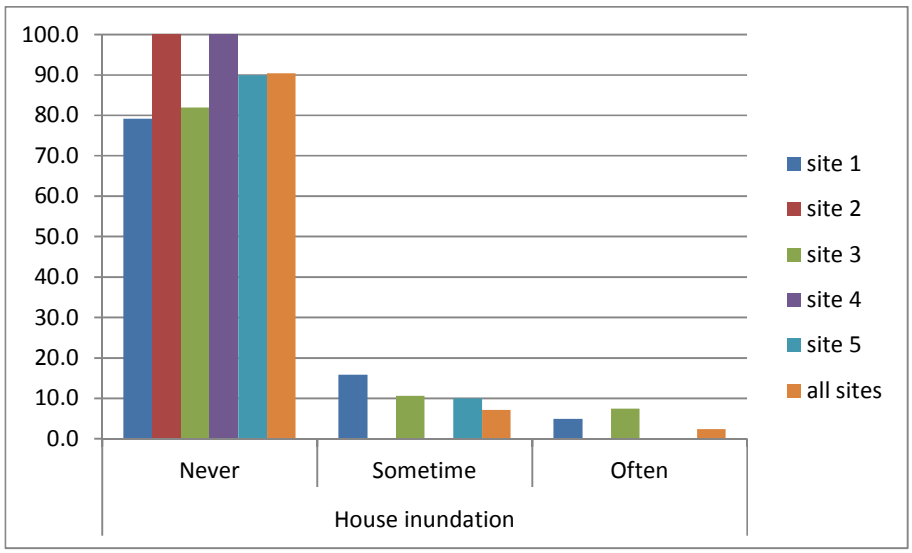
Source: Author survey, 2014

The survey shows that the level of inundation at research sites is still low. Only 10 percent of the households have suffered from occasionally inundations in the past few

years and around 2.4 percent of the respondents have suffered from inundation more often (see Figure 111). However, the challenge of risks from CC and SLR should not be ignored in the long term with urgent warnings from academics and other international organizations.

In preparing for the possibility of inundation in the future, most of the houses in the research areas have higher ground level than the existing road level. Some of them have had to fill up to a higher level after the flood in 2011, mostly in the spontaneous residential site of An Khanh (site 1).

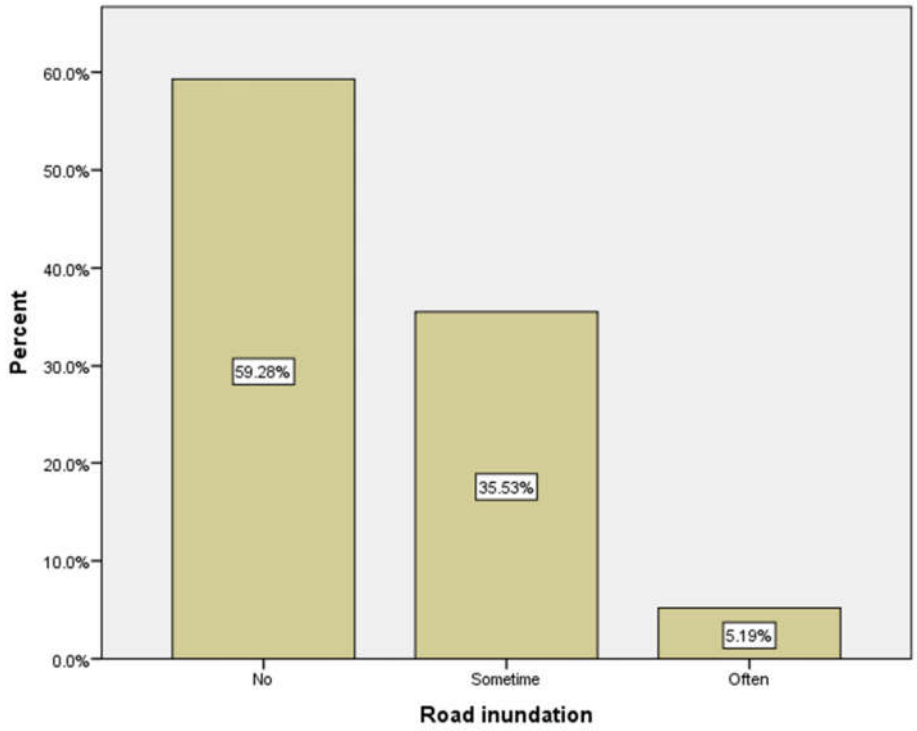
Figure 112: House inundation



Source: Author survey, 2014

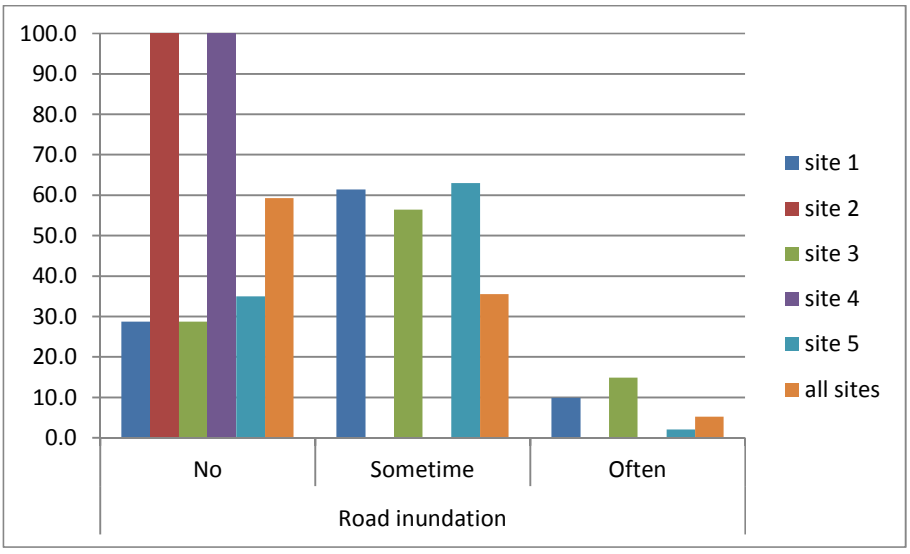
When looking in detail at the housing inundation of each site only the two sites 2 and 4 have reported no housing inundation at all (see Figure 112). As discussed in the previous chapters, site 4 is a formal housing area with high density and good condition of infrastructures and houses. Surprisingly, site 2 is a mixture of both formal and informal self-help housing, but with very little housing inundation since has been developed. However, this could be understandable because this site locates in the low-density suburban area and the furthest from the CBD, in comparing with the other sites. Besides that, it also is located right next to the main river of the city so there is a high ability for water to flow to both the river and the surrounding areas, which are low agricultural lands.

Figure 113: Road inundation



Source: Author survey, 2014

Figure 114: Road inundation between sites

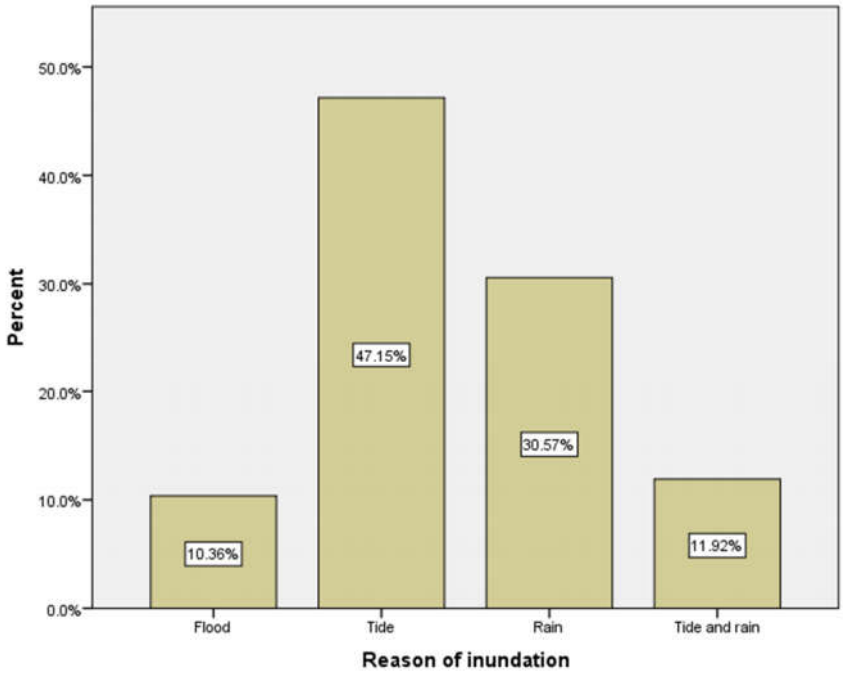


Source: Author survey, 2014

The road inundation is worse than the house inundation with over 40 percent of the households reported that the road in front of their houses were inundated in the past

(see Figure 113). Again, in the Figure 114, we can see even the roads in site 2 and 4 also have very little inundation in the past recent years. And this is one of the reasons that attracted more people to live in these two residential areas than the other sites. In contrast, road inundation in site 1 is much more often than the other sites as site 1 is an informal spontaneous residential area. It is surprisingly that even formal housing areas such as the relocation residential area (site 3) and the pre-build housing area (site 5) also suffered from road inundation quite often. This implies the insufficient surface water drainage systems and low bases of these housing projects.

Figure 115: Reasons of inundation



Source: Author survey, 2014

For the reasons of inundations, most of the respondents agreed that they were inundated because of the tides and rains or a combination of both (nearly 90 percent), and only 10% agreed that the inundation came from annual river flood (see Figure 115).

8.4 Housing adaptation pathway

As mentioned in Chapter 3, this research is also looking for qualitative evidence of how far people are concerned and are adapting to the risk of inundation, which clearly is a major risk in the VMDR. This section discusses on the perceptions and concerns of

the house owners regarding the inundation issue, and describes solutions that they have adopted in coping with this problem in developing and modifying their own houses.

The data for this discussion comes from both the questionnaire surveys and in-depth interviews with householders in all five sites in Can Tho city. When householders were asked the question in the semi-structured interview '*Are you concerned about the inundation ability of this house? If so, have you taken any action to prevent it?*', most of the respondents were confident that inundation was not a big problem, or not at least in recent years or in short-term future, because their houses were newly-built in new residential areas. They also show a low level of concern about the inundation risk to their house with the coming effect from climate change and sea level rise in the near future for this city and the region. However, a few of the respondents, mainly those living in the spontaneous residential area in site 1 or even in the formal residential area of site 4, have been suffering from inundation occasionally, but not in a severe degree, due to the poor infrastructure system.

> Site 1
>
> HH 1.1: Currently my house is higher than the road surface by nearly fifty centimetres so there is no inundation at all. However, the urbanization issue could cause the inundation in the future, so the water drainage and treatment system must be concerned [improved] much more to ensure people's lives are not affected.
>
> HH 1.3: I am concerned, but I think the only way is level up my ground floor.
>
> HH 1.5: Yes, because there is no drainage system, so all the rain and waste water go directly to the surrounding canals, which sometimes make inundation into our garden.
>
> Site 2
>
> HH 2.1: Currently I am not concerned much, as this area is very high and is not inundated when raining. However, when the number of people grow it might cause trouble, as the drainage is too small.
>
> HH 2.2: No. There is no inundation so far.
>
> Site 3
>
> HH 3.1: Because this house was built by the previous owner with high ground floor level [so we have not been inundated]. However, recently the road inundation almost reached the house level. So, I am also worried about, if the tide is getting higher, so what will happen? Maybe I have to level up the house's base.

HH 3.4: As there are still few houses in this area, so the water drainage is fine, but we are still inundated with some heavy rains. So, the state must concentrate on the drainage issue in relocation areas for long term use.

Site 4

HH 4.1: Yes, there are some inundations so far, but not any worse around my house than the other surrounding areas. So, we do not worry much about that, but our neighbours are still suffered from the inundation. The flood just reached my front yard a bit and then went down without coming into my ground floor, and it is quite rare, when there were severe rains.

HH 4.2: Rain, the water goes up for a haft to two hours and then goes down.

Site 5

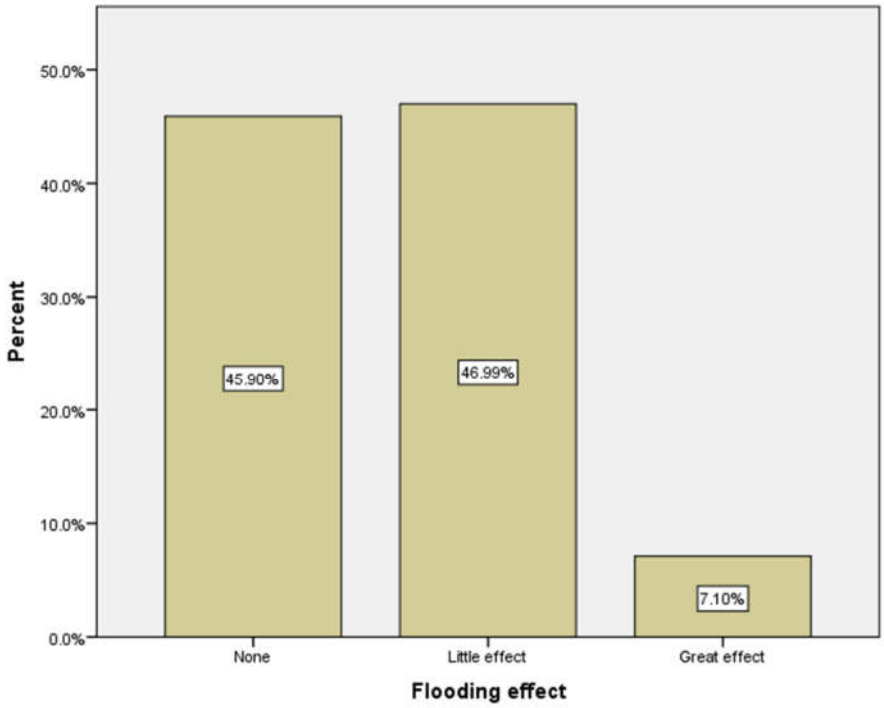
HH 5.2: This [housing] block is higher than the other blocks, which were sometime inundated, but we were not.

HH 5.3: This area was not inundated before, so I am quite pleased with this issue, because I hate the inundated areas and we would be mad if live there in the long term. So, I carefully checked and asked other people before buying this house.

The above response from the household 4.1 shows that, even in the same residential area there are still some differences between the groups or blocks of houses. This happened because the infrastructure of the neighbourhood has been built gradually and sometime after the houses were built. So, there is sometimes a lack or an inadequate supply of infrastructure for the residential area provided by the government or developer.

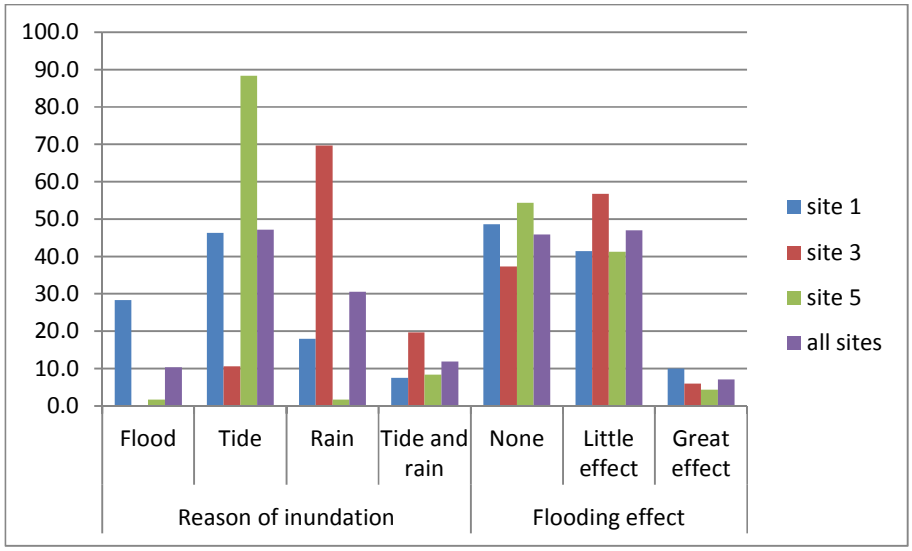
Most of the respondents stated that the major cause of the inundation is heavy rain, plus the poor condition of the sewage system in the neighbourhoods. However, tide is another important problem that could make the drainage system not work well or even sometime become useless, as the city lies on a low wet land area of the region. In order to cope with the inundations, most of the house owners think of levelling up their house's bases or the ground floor's level.

Figure 116: Flooding effect on household's life



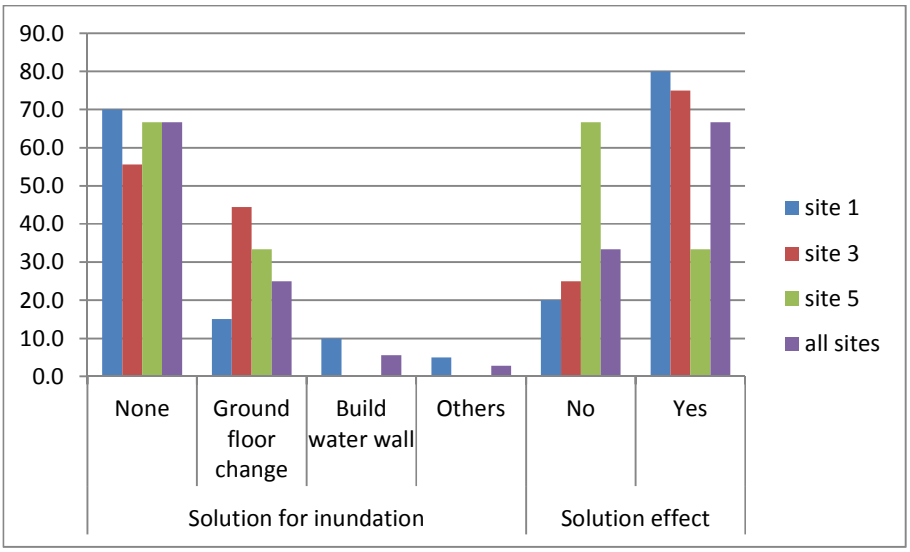
Source: Author survey, 2014

Figure 117: Reason of inundation and its effect on people's life



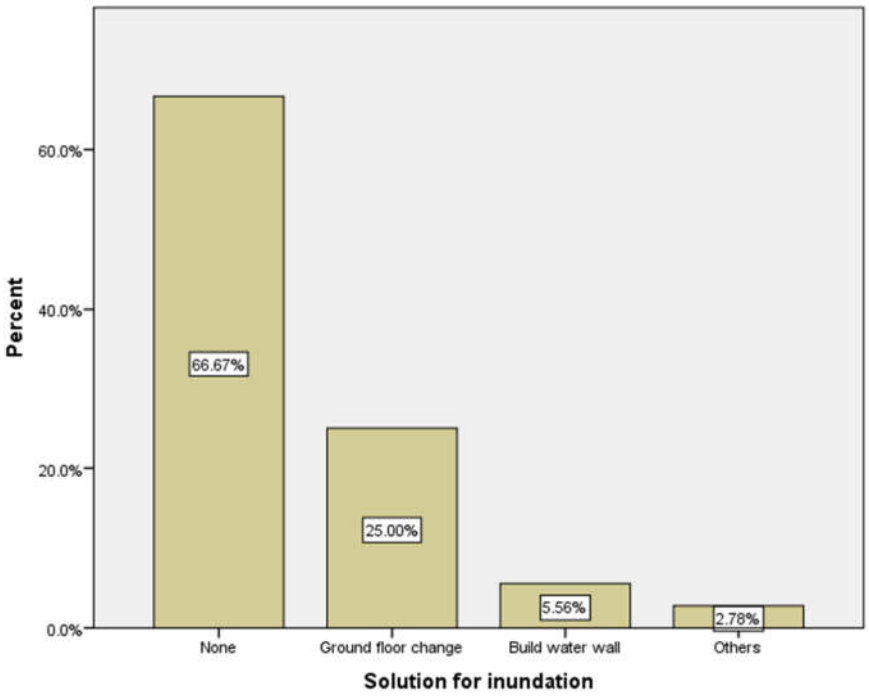
Source: Author survey, 2014

Figure 118: Solution for inundation and its effectiveness



Source: Author survey, 2014

Figure 119: Solution for inundation



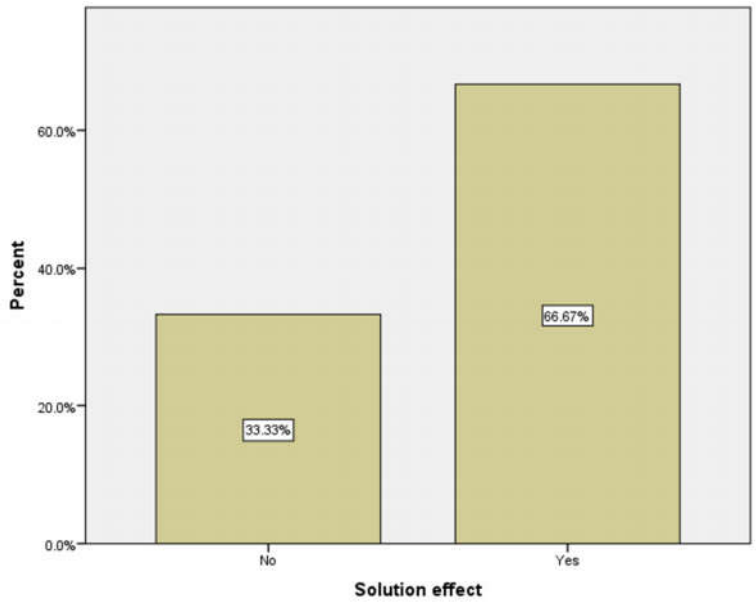
Source: Author survey, 2014

Among the households which have been suffering from inundation in recent years, 67% did not apply any solution to solve the issue. They just simply lived with it.

Fortunately, the frequency of those inundations is not high, and the suffering level is still low, so most of those people still do not think about the way to solve it, or just focus on the domestic solution. One of the respondents in the informal housing site has said "*I am concerned about the inundation, but I think the only way is level up my ground floor*".

And maybe she was right. The survey shows that 67% of the households did not have any solution for coping with inundation, while among those who had applied some solutions for coping with the inundation, 25% chose to level up their ground floor and only 8 percent chose solutions such as building up the water wall or other different solutions (see details in Figure 119). However, when looking more deeply into different residential areas, the effects of these solutions seem to have different result. While the ground floor change solution has been used commonly and provided effectiveness in most sites, it was not the case in site 5, in which houses were pre-build by the developer. So, it implies that the flexibility of self-build housing also provides a more flexible way to change the structure of the house in the future with no or little effect on the neighbour houses, thus provides a more effective outcome.

Figure 120: Inundation solution effect



Source: Author survey, 2014

8.5 City plan for climate change adaptation

In order to fulfil the National Strategy for Climate Change Adaptation the CTC's authority has done some initial steps in making policies and plans, such as the establishment of the Can Tho Steering Committee for Climate Change Adaptation Project (with the Decision No. 158) and its office, which is named the Office for Climate Change of Can Tho city. In recent years, with the help of some international organizations such as the United Nations Environment Programme (UNEP), United Nations Development Programme (UNDP) and the Rockefeller Foundation, the Can Tho authorities have issued some major documents on climate change adaptation strategy for the city. However, there is still a long way to go to make those strategies become reality, and another related issue is the government funding for implementing those projects and taking them into real effect. From the interviews, the official respondents commented on these plans:

> Official 01. Currently, the city has the programs and plans for the implementation of the response to climate change. As those programs are implemented uniformly across the country from the central to local levels, they are now in the process of implementing the project"
>
> Official 02. In Can Tho city currently, there are several solutions such as: building the tide sluices, trying to plant more trees and creating more green spaces for the city, as well as improving road and house level
>
> Official 03. As I know, the city already has the plan and solution for this issue. However, in order to apply into practice of the city we must have to seek for the guidance from the upper level leaders; Therefore, that is an issue I will not discuss more [at this time]
>
> Official 04. The city has been concerned about this issue for several years. And currently, we are building up some [infrastructure] projects, such as the dyke system for the rivers, upgrading the canals. On climate change mitigation, we are implementing the policy which encourages builder to use non-heat brick and by 2020 to replace all the heated material, and complete the water treatment system and grow more trees, and encourage people to live in formal urban areas to manage and improve the living condition, telling people to protect the city and understand about the global problem of CC and SLR and Vietnam in particular
>
> Official 05. As I know, there are many, but the nearest is a project from Australia which is to help to develop Can Tho city to be the Model City of Asia. That's the information which I read and heard on press and television recently

Here, the level of perception of the local officials is quite high. However, the level of application of policies in practice is still low. Some of the officials suggested that policies have not gone much beyond aspiration as yet.

Yet, Can Tho city could become a 'model city' in terms of coping with climate change and sea level rise while continue to preserve its water-landscape identity and natural environment. However, to get there, a clear and feasible approach must be adopted with long term investment from both the central and local government, as well as the support from the international organizations in combating with the climate issues. Tackling with those issues must be started from the way the city is being developed especially housing development. Thus, this research provides some useful understanding in the sustainability of housing development in Can Tho city for helping the policy makers in adopting a possible way for a better future of the city.

8.6 Conclusion

The urban informal settlements are particularly vulnerable to flooding events, due to both their generally poor quality of construction and high population density. An integrated approach to the analysis of flooding risk of informal settlements should take into account, and propagate, the many sources of uncertainty affecting the problem, ranging from the characterization of rainfall curve and flooding hazard to the characterization of the vulnerability of the portfolio of buildings (De Risi et al., 2013).

One significant conclusion is that, although the risk to the VMDR/CTC from inundation associated with SLR is high in the future, as predicted by the environment experts, the practical experience suggests that the more immediate problems are rather different, in terms of both causes and perceived severity. In recent years, most of the inundations that occurred in the residential areas and other parts of the CTC were caused primarily by the poor drainage system and the heavy rain, especially when the tide is high.

So, in the short term, the CTC's authority has tried to invest more in the dyke and drainage systems of the city in order to solve the emergent inundation. In recent year, with the help from the World Bank with the UUPs, the CTC has some improvement in improving the infrastructure of the city especially in the sewage and transportation systems.

CHAPTER 9: CONCLUSION AND RECOMMENDATION

9.1 Introduction

Self-help housing, as the central idea of the programmes for urban and housing upgrading in developing countries since 1970s, has arguably become the most important approach for governments in solving the housing issues and improving the living condition of low-income people. Informal housing is moving from being seen as 'the problem' to being perceived as more of 'the solution'. This research fills the gap in self-help housing literature in developing countries with the relatively successful case of Vietnam in relieving the urban housing problem. Further, such an experience of a transition economy like Vietnam could be a good lesson for other developing countries in the world, which share more or less the same experience and conditions. Moreover, as the first comprehensive research on housing development in VMDR, this study makes a significant and foundational contribution to the housing and urban research literature in this region.

The main objective of this final chapter is to summarize the research findings from the previous chapters. Important findings of this study relate to: the housing development processes; housing preferences; the roles of stakeholders in the development processes; and the effects of legal framework and policies in land and housing on these processes of development. It also discusses the role of the current urban upgrading policy in housing development, and gives some assessment of the spontaneous housing development which has taken place in Vietnamese cities in the past few decades.

9.2 Summary of the major findings

As set out at the beginning of this research, the purpose of this study is to investigate the role of self-help housing for low and medium income urban residents in newly-developed housing areas, their perceptions and preferences regarding housing, and the perceptions of other stakeholders in the context of Vietnam. This was fulfilled by asking the main research question: *How does the self-help housing contribute to the urban housing development in the Vietnamese Mekong Delta Region, and what are the roles and perceptions of stakeholders in the development process*? Throughout the research, four sub-questions of the research were answered and summarized in the following sections:

Question 1: Why and how does self-help housing happen commonly in Vietnamese cities, and what is the role of self-help housing in urban housing development in Vietnam? This was answered in chapter 5 and chapter 6.

Throughout this research, some main reasons of the self-help housing dominance in Vietnamese cities have been found. First, self-help housing was driven by the demand of low and middle-income groups of people who trying to build their own houses after the Vietnamese government stopped the subsidized housing policy after 'Đổi mới'. Second, the adoption of a loose urban planning and management system including the lack and weakness of its staff has provided a good condition for self-build housing to develop. Third, self-help housing has provided a flexible and affordable approach to the housing shortage in Vietnamese urban areas especially in the context of a poor housing finance system. Finally, in the transition economy of Vietnam, self-help housing has generated the profit in property value directly to the individual builders, not the professional property developers.

This study found that informal self-help housing phenomenon mostly happened in unplanned areas of Vietnamese cities by individuals with their own savings. The current land policy that allows land division and changes in the purpose of using has created an easy access to affordable land for individual housing builders. This provided many opportunities for the low and middle-income groups of people. Most of these houses were built up by informal contractors under design and supervision of the owners themselves. At the same time, formal self-help housing has taken place in the new urban development projects including the relocation residential areas. It has attracted the middle and high-income groups of people, although many of them have just invested in these houses for profit not for housing need.

Question 2: What are the main approaches, forms and identities of new urban housing developments in the VMDR, and what economic, social or environmental problem arise from this? Chapter 6 and chapter 7 have provided evidence and material to answering this question.

Generally, there are two directions of housing developments within the city. On one hand, the government and developers try to develop a new residential area with full infrastructures. On the other hand, local residents and migrants are helping themselves with spontaneous housing with very limited support from the government.

Among the five selected research sites, two were informal self-help housing in unplanned residential areas, two were formal self-help housing and one was formal pre-build housing in planned residential projects. The survey findings revealed that spontaneous self-help housing has grown rapidly as individual house developers did not have to pay for the infrastructure costs, but thus ended up with a poor equipped residential area. However, in the short and medium term, people living in spontaneous residential areas were looking for a chance to upgrade their neighbourhood condition by the local government with the support from the international organization such as the World Bank in recent years. This approach on one hand could provide affordable housing for low-income people, but on the other hand put the local government in a difficult situation in providing infrastructure and managing the urban development.

In contrast, formal housing projects including both the self-build housing and pre-build housing were not so successful, partly because individual developers or house buyers have to pay for the infrastructure costs up front. However, these housing projects only provided some basic infrastructures such as road, electricity, water supply and sewerage but not the other facilities such as park, playground, school, etc.

Thus, this phenomenon helps to explain why self-help housing, including both the informal and formal types, have grown rapidly and contributed most of the new housing stock in Vietnam in recent years. However, this process still ends up with low standard residential areas, as people do not have to pay for all the infrastructures that a standard neighbourhood should have, but expect the investment from local government in the short or longer term. So, households' money, which was mostly from saving, could go directly to the land and housing construction. That explained the significant improvement in housing spaces but not in infrastructures of the neighbourhoods.

In this research, the two processes of housing development, including self-help housing and project housing, were analysed in detail, which revealed the contrast between these two approaches in housing development in Can Tho. The results of the analysis showed that self-help preference has played an important role in both of the housing development approaches. Besides that, this research argued that although the urban upgrading projects in Can Tho city, which were mostly under the support of the World Bank, still have some limitations. In general, they have had some major results in improving the living condition and environment of the low-income areas in Can Tho city.

However, under a weak urban planning and management system, these upgrading approaches could motivate people in developing their houses in a spontaneous way and looking for the upgrading projects in the future which could bring them much benefit not only in living condition and environment improvement but also in their houses' value. Thus, a strong and effective urban management system should be in place before any further upgrading project take place. And the local government should find out a fair and possible way to recover the cost for these projects such as taxing on land and house of the beneficial landlords.

In this research, the main forms and identities of new urban housing development in the VMDR have also been found. First, attached row-house was the dominance type of house in new housing projects in the VMDR cities. Most of them were built up with high density and in multi-storey form. The typical housing land plot was around 100m2 (usually 5m width and 20m length).

Question 3: To what extent does the legal and administrative framework, land ownership and the practical process of land use change affect housing development in Vietnamese cities? This question was answered in chapter 4 and chapter 5.

This research revealed a pro-self-help legal and administrative framework that has been adopting in Vietnam since 'Đổi mới' policy. This framework has provided a good environment for self-help housing development in both small scale (individual household) and large scale (housing project) such as: allow land division, allow changing land use purposes, and allow people to owe the tax of their land. Besides that, there were some limitations in this legal and administrative framework, especially in the aspects of compensation and relocation that could lead to some conflicts between the original land owners and property developers, and thus delayed most of the formal housing development projects.

Although there is no private freehold land ownership in Vietnam, people have considered the land use right certificate as a kind of 'ownership'. In fact, this consideration and the practical process of land use change have had a great impact on housing development in Vietnamese cities.

Question 4: What are the major risks in urban housing development in the VMDR? This was answered in chapter 8.

This study found that the issues of Climate Change (CC) and Sea Level Rise (SLR) have been of more and more concern in Vietnam, especially in the VMDR. The Vietnam government has tried initial efforts in tackling this global issue in a top-down approach. However, actions have only been limited at central government level and city level, such as publication of some adaptation strategy and action plans. At the district/neighborhood and household level there was very little concern, based on recent actual experience, although inundation would be one of the major risks in the VMDR as a result of SLR in the future.

In summary, all the above findings have made a contribution to knowledge and academic literature on an international scale. By using the case study of Can Tho city in VMDR, this research revealed that informal self-help housing can be more the solution than the problem, at least in a transition from rural low-income country to urbanising middle-income country. However, a more managed process will be needed in the future to face up to environmental risks/challenges and to create a better and more sustainable urban system.

9.3 Limitations of the research

Although the researcher has used his best efforts, this study still has some limitations. Firstly, as this is the pioneer research on the self-help housing development in Vietnam, especially in the VMDR, so it explores mainly the qualitative and descriptive sides of the issue. And yet there are many more issues including both qualitative and quantitative approaches which relate to housing issues in Vietnam which can be explored in the future. This will be discussed more in the suggestion for further research section.

Secondly, this research focuses on the Vietnamese Mekong Delta Region and the Can Tho city only; other regions in Vietnam, which have different backgrounds in terms of socio-economic, demography, topology and housing culture could be not included but should be explored in the future research.

Finally, due to time constraints, only five neighbourhoods were selected for case studies. However, by selecting the cases from different locations and different types of areas (planned and unplanned), it was sufficient to generate in-depth understanding of the housing development process and the influence of planning system and policy on the development of the neighbourhoods in the Can Tho city.

Based on the limitations and constraints of this study, the following two suggestions are made for future research that involves similar research aims. First, this research only focuses on the housing development process with mostly qualitative exploration, thus more quantitative research could be conducted in order to give a better understanding of aspects of self-help housing in Vietnamese cities. Second, widening the range of environmental issues and involvement of more case studies are recommended for deepening the understanding on the effect of global climate issues on spontaneous urban housing development in weak planning systems.

9.4 Policy recommendations

First, as discussed earlier in the second chapter of this dissertation, self-help housing policy has only been considered as a solution for housing the urban poor in some developing countries, such as Thailand or Turkey. However, in the case of Vietnam, the author would argue that the application of self-help housing could be extended further to meet the housing need of all the income groups in urban area.

Second, this study has analysed the existing mechanism of spontaneous housing development. It also discussed the role of planning system in Vietnam. It argued that, although most of the self-development houses in Vietnam could be upgraded to become formal housing with legal statuses, and that they are affordable for many low-income people in Vietnam and also have made an important tax contribution, nevertheless this kind of development must be reconsidered, since the lack of long term planning and connection with the other social and technical infrastructure systems.

Further, we can see the important role of the government in making a more sustainable policy in housing development in order to decrease the conflicts and balance the benefit among stakeholders within the development process. This could help to improve or develop a better policy for housing development in Vietnam. The author would argue that a sustainable housing and urban development policy in the VMDR could not be reached if we do not firstly provide the data on the housing process at the level of households, as consequently relate household level process to neighbourhood level and city level process.

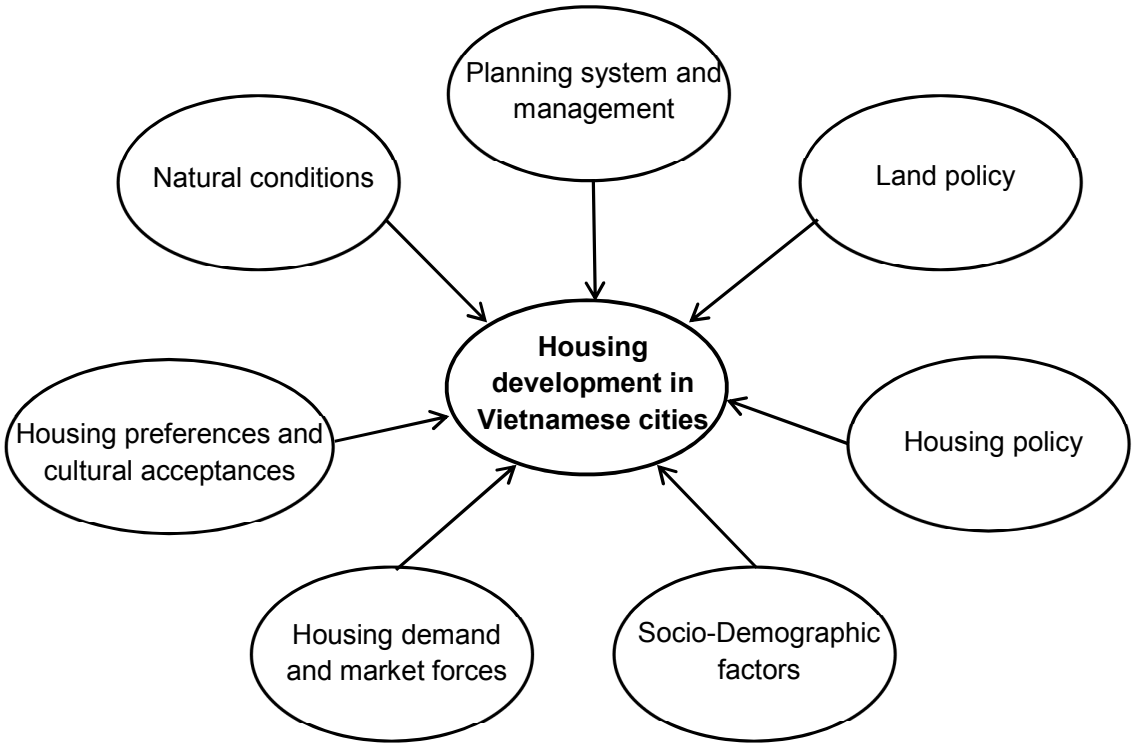
However, the limitations in housing development in Vietnam, especially the spontaneous housing, have contributed to other problems in urban development such as

drainage system, public transportation system and public facilities. So far, under the urban upgrading projects scheme with the major support from the World Bank, some Vietnamese cities have solved some of these problems successfully. And the outcome has improved the living condition of million people in those cities in recent years.

- *Recommendation for housing policy improvement*

Among the factors that influence the urban housing development in Vietnam, perhaps the central and local government should focus on improving the three factors: land policy; housing policy; and planning and management system (see Figure 121) in order to achieve a more efficient and effective housing development system in Vietnamese cities.

Figure 121: Factors influencing the urban housing development in Vietnam



Source: Author, 2014

The following recommendations are some of the urgent tasks that local authorities should consider and take in order to overcome the current problems and improve the efficiency in the control and management of housing development in Vietnamese cities in the short-term and also for the long-term:

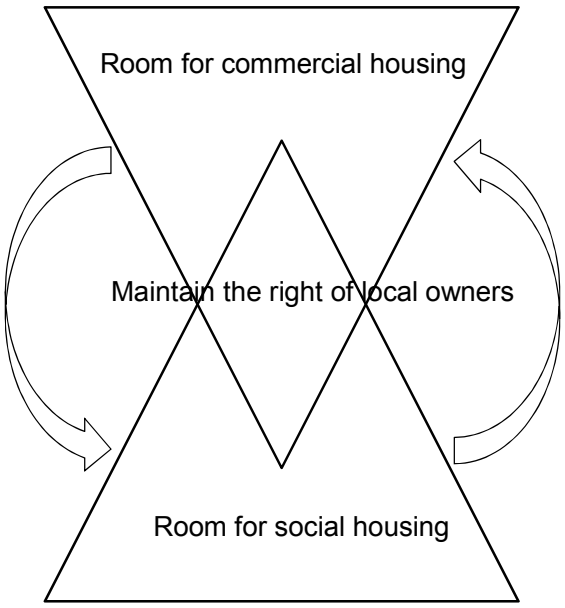
1. Identify the current housing needs and affordability of each group from low-income to high-income of the residents including immigrants in order to build a suitable policy and plan for housing development.
2. Identify existing residential land and housing stocks including the housing and the land will be formed in the future according to the approved projects.
3. Review the housing projects and reorganizing the investment and construction of residential areas in the direction of making specific binding commitments for investors especially on the stage of completion, to end the delay in project implementation which decreases land use efficiency and affects the rights of the people in the planned area. This could eliminate or transform situation of investors who had less or no capacity to implement the project, and also to make possible the abandonment or adjustment of the unfeasible projects.
4. Completing the unfinished housing projects in order of priority in line with the actual needs of the local population. Create mechanisms to link developers together to increase the financial capacity, management capacity and project implementation for each specific project in order to avoid spreading investment thereby enhancing economical and efficient use of land.
5. Improve policies to support home loan mortgage and revise the tax policy for land and house in order to curb speculation and increase budget revenue for the government.
6. In addition, establish the zoning and detailed planning for the whole city to make a solid basis for urban management and housing development in a formal and effective way. These plans should clearly identify residential areas with three main groups as follows: group of self-improvement housing, group of self-build housing and group of project housing, which must include specific policies and regulations to each housing group.
7. Establish a mechanism to encourage housing development projects, especially apartments, gradually limiting the proportion of self-built homes to improve land use efficiency, promote the application of new technologies in construction designed to reduce costs and improve the quality of projects as well as effective management and supervision of construction.
8. Adopt policies to encourage investment in sustainable residential projects and housing that able to adapt well to flooding, climate change and sea level rise.

9. Set up a management system for planning and urban development platform based on GIS to increase management efficiency and create a unified mechanism to manage urban development.

- *Propose an integrated approach for housing development in Vietnam*

The author argues that housing development could be improved by integrated the two approaches in housing development as discussed before: the top-down and bottom-up approaches. In the core of this integration, the right of the original land's owner must be maintained (see Figure 122). In other words, there must be a fairer mechanism for the stakeholders to share the benefit from the development process. Thus, would lead to a more sustainable and effective urban development in Vietnam.

Figure 122: Integrated approach for housing development



Source: Author, 2015

9.5 Conclusion

This research is about the role of self-help housing in the urban housing development in Vietnam particularly in the Can Tho city in the VMDR, with the specific focus on the process of the development and factors that affect the process.

The understanding of this development process not only helps the local authorities to control and manage the housing development but also provides the essential supports for people to develop their houses formally. It also gives suggestions for the local urban

planners in reshaping the city form to fit with both the future need and the current need of the citizen.

- *Taking back urban planning and development control*

Throughout this research, it has revealed a weak planning system at the local level in Can Tho city as well as the legislation for urban development control especially in housing development in the city. As in recent years, the local government gives the urban planning role into the hands of the developers thus has resulted in a chaotic and fragmented urban pattern. It's also end up with the 'leopard skin' development as the inadequate ability of the developers and oversupply of housing to the market as the main reason is that people want to occupy the land as much as they could despite the negative effect to the city and housing market development and the efficiency of land use in Can Tho city.

The local government should take back the role in making the plan for the whole city including master plan, zoning plan and detail plan for development both in the short-term and long-term, instead of giving them to the developer's hands. It will also help the local government in managing and controlling the city development efficiently with a clear and unique plan for development. Yet, in order to achieve these plans, the role of public consultation must be fully engaged, and a comprehensive analysis of the demand for urban development especially housing must be conducted. Moreover, the multi-level of local authorities in urban management seems do not work or at least play an important role in controlling the city development effectively. It has also caused the conflict in providing a common rule and action for developing the city as a whole system, as the boundary-based management model and approach simply do not work well in modern urban management.

- *Conclusion*

The model of self-help housing in Vietnamese urban areas has been derived from the self-build housing in rural areas which are gradually becoming urban areas due to the process of urbanization over the years, and thus have formed the culture, habits and necessities in housing development. The process of urbanization and the expansion of urban boundaries have led to the integration of a large amount of rural housing to urban housing stock, which carry the characteristics and patterns of its own. However, this

integration should be placed in an overall development to ensure it does not impede the overall development of the municipality towards modernization.

In the transition from subsidized to market economy, the state plays a huge role in supporting and promoting self-built housing to solve the urgent problems in housing for the people especially the poor people in many ways such as allowing people to split the parcel of land, conversion of agricultural land into residential land, supply land for resettlement, support infrastructure and improving substandard and spontaneous residential areas. However, the development control again revealed weaknesses especially in the planning and management of urban planning.

In Vietnam, there is a strong development of self-build housing and many people advocate it because this type of development in housing has directly brought the economic benefit for the large majority of people including the urban and rural resident, but not to the real estate developers. Besides its flexibility in building the house, it also meets the housing need and preference in the most appropriate way for the financial conditions of each household. Besides that, the most advantage of self-build housing is the ability to improve, upgrade or rebuild independently and in stages in the future without having significant impact on the surrounding households. Self-built housing is also more favoured by people than apartments because it could be flexibly used either as a home or business, or a combination of both.

In short, self-help housing will continue to grow in the short and medium term in the urban areas of Vietnam. However, in the long term, the government is gradually improving the mechanisms and policies to encourage the development of pre-build housing such as condominium in the new urban areas, especially in the two major cities of Hanoi and Ho Chi Minh City, in order to increase the efficiency of land use, provide adequate infrastructure and enhance the ability to control urban development.

The lack and weaknesses of the current urban planning and housing policy of Can Tho allowed the uncontrolled growth in spontaneous urbanizing areas in the city, incrementally aggravating the problems on infrastructures, social services and environment. These problems would lead to the need of upgrading, renovation or even demolition in some cases in the near future, which would be a lose-lose situation for both the local government and dwellers. In the other hand, formal housing development approach also revealed some limitations in developer's ability, the demand of housing

market, and the loose government's management, which led to the inefficiency of land use, delay in housing projects, and conflict in land transfers. Thus, this thesis provided some suggestions for improving the policy in urban and housing development in Can Tho by providing an integrated housing development approach in order to archive a more sustainable future for the city.

In conclusion, by using the case study of Can Tho city, this research explained why self-help housing has become a successful approach in housing low and middle-income people in Vietnamese cities through its three types: commercial self-help, subsidized self-help and spontaneous self-help housing. However, in order to achieve a more efficient and sustainable housing development in Vietnamese urban areas, spontaneous self-help housing should be replaced/upgraded into 'supported self-help' in which the local government could support and provide legality for people who want to build up their own houses at the beginning of the development process. This model of 'supported self-help' must base on a clear and feasible zoning plans and detail plans which determine where and how people can build their own houses while also saving land for essential infrastructure and social facilities.

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APPENDIX A

Sample of household questionnaire, site observation checklist and interview guides

Site number:.....; Serial number:.....; Address:.....

RESEARCH ON HOUSING DEVELOPMENT AND THE ROLE OF SELF-HELP HOUSING IN CAN THO CITY

This questionnaire survey is for obtaining information on the self-help housing development in Can Tho City from the perspective of residents to be used for completing a PhD research at Heriot-Watt University. The findings will be used for academic purpose only. The identity of the respondents will not be disclosed in any manner.

This will only take a short amount of your time, and you can skip any questions that you feel unhappy in answering or unknown.

Thank you very much in advance for your help.

Part 1: General information

First we would like to ask you some general questions about your household

1. Are you the household head?
☐ Yes
☐ No. Relation to HH head:……..

2. How many total people are there in your household, including yourself? Number:.....

3. How many people are in working age (from 18 to 60 years old)? Number:……

4. Could you estimate the total income of your household as a monthly amount?
☐ Under 5 mil VND
☐ 5 mil-10 mil VND
☐ 10 mil-20 mil VND
☐ 20 mil-50 mil VND
☐ Above 50 mil VND

5. How many generations are there in your household? (Grandparent, parent, children, grandchildren) Number:.....

6. How long have you been living in this house? Since:…….

7. If yes, where is your previous address? District/Province: ……..

8. If having moved from another area, please give the main reason?
☐ Household division
☐ Job or study
☐ Marriage
☐ Clearance
☐ Live with relative
☐ Inheritance
☐ Better living environment or condition
☐ Other (Please specify):……

9. Do you or other household member own or rent your home?
☐ Owner
☐ Tenant. Price:…..…..…..mil VND/month
☐ Other:……

10. If own, could you explain where the main cost for your house and land came from?
☐ Savings
☐ Family member gift or loan
☐ Mortgage or other bank loan
☐ Other:……

11. Are there any business activities at your home? If yes, which is the field of business?
☐ No (Go to question 13)
☐ Small retail
☐ Office
☐ Personal service
☐ Education
☐ Manufacture/repair
☐ Other:……

12. Are you the business owner or letting?
☐ Own
☐ Let

13. How many cars, motorcycles and bicycles are available in your household? Number:…..C;…...M;…...B

14. Do you own another house at the same time?
☐ Yes
☐ No

15. Can you estimate the current value of your land and house?
☐ Under 500 mil VND

☐ From 500 mil to 1 billion VND
☐ From 1 to 2 billion VND
☐ Above 2 billion VND
☐ Don't know

Part 2: Information on land and house

Next, we would like to ask you some questions about your land and house characteristics

Land plot characteristic

16. What is the legal status of this land?
☐ Don't have any paper
☐ Pink paper
☐ Red paper
☐ Other certificate:……

17. What is the current land use status of your land?
☐ Residential
☐ Agricultural
☐ Manufacture
☐ Other:……

18. What is the total area of this plot? Area:……m2

19. Dimension of the width and length? Width:……..m; Length:……m

Housing characteristic

20. When has your house been built or last rebuilt? Year:…….

21. What is the estimated total area of your house? Area:…….m2

22. How many total rooms are there in your house? Number:……

23. How many total bedrooms are there in your house? Number:……

24. How many total toilets are there in your house? Number:……

25. Do you have any garden attached to your house?
☐ Ground garden
☐ Roof garden
☐ No

26. Do you build the house yourself or by previous owner or developer?
☐ Self-build
☐ Build by previous owner (Go to part 4)
☐ Developer (Go to part 4)

Part 3: Housing development process

You have indicated that your house was built by yourself, so we would like to ask you some questions about the development process of your house

27. Who was in charge of designing your house?
☐ Architect or engineer
☐ Yourself or other family member
☐ Contractor
☐ Using available design
☐ Other:……

28. To what extend were you satisfied with the design?

Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied
☐	☐	☐	☐	☐

29. Before construction start, have you finished the application for building permit?
☐ Yes
☐ Notification to local authority
☐ No (Go to question 31)

30. If yes, who was in charge of this application?
☐ Yourself or other family member
☐ Designer
☐ Contractor
☐ Other:……

31. Did you sign contract with the contractor?
☐ Yes
☐ No (Verbal agreement)

32. What kind of contract did you sign with the contractor?
☐ Manpower only
☐ Manpower and basic material
☐ Manpower and full material
☐ Other:……

33. What type of payment to the contractor?
☐ Cash

☐ Bank transfer
☐ Other:……

34. How many time of payment?
☐ One before start
☐ One after finish
☐ Many within construction process
☐ Other:……

35. To what extend were you satisfied with the contractor?

Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied
☐	☐	☐	☐	☐

36. Who was in charge of supervising the contractor work?
☐ No one
☐ Yourself or other family member
☐ Designer
☐ Other:……

37. During the construction, did local authorities come for checking?
☐ Yes. Number of visit:……
☐ No (Go to question 40)

38. Did they issue any administrative penalty or warning?
☐ Yes. Number:……
☐ No (Go to question 40)

39. If yes, what were the specific areas?
☐ Electricity
☐ Water
☐ Sanitation
☐ Building regulation
☐ Other:……

40. During the construction, what were the sources for water and electricity for construction work?
☐ Already available
☐ Temporary installation
☐ Next door borrowing
☐ Other:……

41. Who decided the type of construction material?
☐ Yourself or other family member
☐ Designer
☐ Contractor
☐ Other:……

42. In general, to what extend were you satisfied with the whole process?

Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied
☐	☐	☐	☐	☐

Part 4: Finally, we would like to ask you some question about risks on flooding and land eviction

Flooding risk

43. Has your house been inundated?
☐ Never (Go to question 48)
☐ Sometime
☐ Often

44. When was the most severe affect?
Year:……

45. How much was the inundation depth?
Depth:…….m

46. Did you have any solution in recent year?
☐ No (Go to question 48)
☐ Change ground floor level. Height:…m
☐ Build water wall. Height:…..m
☐ Other:……

47. Was it effective in protecting your house?
☐ Yes
☐ No

48. Has the road in front of your house been inundated?
☐ Never (Go to question 52)
☐ Sometime
☐ Often

49. How much was the inundation depth?
Depth:…….m

50. What do you think the main reasons of this inundation are?
☐ Flood
☐ Tide
☐ Rain
☐ Other:……

51. How did these inundations affect your life and work?

☐ No effect
☐ Little effect
☐ Great effect

Eviction risk

52. Are your house and land in a situation of eviction?
☐ Yes
☐ No (End the questionnaire)
☐ Don't know (End the questionnaire)

53. If yes, how much is the total area of eviction on land or house?
Area:…….m2

54. Are you eligible for resettlement?
☐ Yes
☐ No (End the questionnaire)
☐ Don't know (End the questionnaire)

55. If yes, where is the new land or house? District:……

Are you willing to talk in more detail about your house development experience?

Thank you very much for your cooperation!

Part 5: House appearance assessment list

1. Type of house
☐ Attached row house
☐ Detached house
☐ Other:……

2. Width of house
☐ <4m
☐ 4-5m
☐ >5m
☐ Not identify

3. Storeys *(mezzanine floor and roof floor count one floor)*
☐ 1
☐ 2
☐ 3
☐ 4
☐ >=5

4. Finishing material
☐ Wall: ☐clay brick, ☐steel panel, ☐wooden ☐panel, ☐other:……
☐ Roof: ☐steel panel, ☐tile, ☐RC, ☐other:……..
☐ Door: ☐steel, ☐wood, ☐composite, ☐other:……..
- Window: ☐steel, ☐wood, ☐composite, ☐other:……..

5. Lean-to at front or side
☐ None
☐ Flexible
☐ Fixed (Steel frame with zinc panel)
☐ Other:……

6. Fence at front or side
☐ None
☐ Steel
☐ Wood
☐ Other:……

7. Balcony
☐ None
☐ 1
☐ 2-3
☐ >3

8. Condition/External appearance
☐ Good
☐ Moderate
☐ Poor
☐ Not identify

Image file:_____.jpg

Site observation checklist
Characteristic of Site

1. Dominant house type
☐ Condominium
☐ Attached row house
☐ Detached house
☐ Other:……

2. Type of road/path
☐ Sand
☐ Stone
☐ Concrete
☐ Asphalt
☐ Other:……

3. Size/width of road/path:……m

4. Sidewalk
☐ None
☐ Concrete
☐ Block tile
☐ Other:……

5. Water supply
☐ Water meter
☐ Well
☐ Other:……
☐ Not identify

6. Drainage
☐ Open sewer
☐ Closed sewer
☐ None
☐ Not identify

7. Electricity supply
☐ Under-ground
☐ Durable over-ground
☐ Temporary over-ground
☐ Not identify

8. Tele-communication network
☐ Under-ground
☐ Durable over-ground
☐ Temporary over-ground
☐ Not identify

9. Surrounding environment and public space (5 minute walk or 400m distance from site)
☐ Canal (Tick if yes)
☐ Pond
☐ Park
☐ Market
☐ School

Interview guide for local government officers

RESEARCH ON HOUSING DEVELOPMENT AND THE ROLE OF SELF-HELP HOUSING IN CAN THO CITY

The purpose of this research is assessing the practical housing development and the role of self-help housing in solving the housing need for low and middle income group in Vietnamese cities. This interview is for attaining information housing development in Can Tho City from the perspective of local authorities to be used for completing a PhD research at Heriot-Watt University. The findings will be used for academic purpose only. The identity of the respondents will not be disclosed in any manner.

This will only take a short amount of your time, and you can skip any questions that you feel unhappy in answering or unknown.

Thank you very much in advance for your help.

1. There has been a lot of new housing development in this city over recent years including pre-build housing by real estate developers and self-build (self-help) housing by house owners. Do you regard this as a good thing or a bad thing, or a mixture of both?
2. What is good about it?
3. What is bad or problematic about it?
4. How do you regard the role of spontaneous housing in Vietnam in solving the housing need for the urban low and middle income group?
5. Being self-help housing, but some new housing has been formally planned and approved (new residential area), whereas other new housing has been built in a more informal, spontaneous fashion (spontaneous residential area). How would you compare the two types of new housing?
6. In your opinion, what are the main reasons of the spontaneous housing development in this city?
7. What are the difficulties in managing the development in spontaneous housing areas?
8. What are the major challenges for providing infrastructure (including road, electricity, water, drainage) to the spontaneous housing areas?
9. What do you think about the roles of the *National Housing Development Strategy* in solving the housing need for the urban low and middle income group in Vietnam?
10. Is there any current or future housing policy or scheme designed for the urban low and middle income group?
11. What are the major challenges for developing any plan/programme for housing the urban low and middle income group?
12. What is your opinion about the roles of the Urban Upgrading Projects (UUPs) in urban and housing development of Can Tho city?
13. Does the City have any plan or solution on urban and housing development in coping with the climate change (CC) and sea level rise (SLR)?

Thank you very much for your cooperation!

Interview guide for householders

RESEARCH ON HOUSING DEVELOPMENT AND THE ROLE OF SELF-HELP HOUSING IN CAN THO CITY

This interview is for attaining information on the self-help housing development in Can Tho City from the perspective of local residents to be used for completing a PhD research at Heriot-Watt University. The findings will be used for academic purpose only. The identity of the respondents will not be disclosed in any manner.

This will only take a short amount of your time, and you can skip any questions that you feel unhappy in answering or unknown.

Thank you very much in advance for your help.

1. Could you please explain the origins of this land plot? (Or how did you get it?)
2. How did the legal process happen?
3. How the tax obligations on land and housing were done?
4. What were the difficulties during this process? And how did you solve them?
5. How do you compare your previous house to this one?
6. Do you intend to live here permanently?
7. To what extent do you feel confident that you will be able to live in this house and land? (Or do you worry about the possibility of eviction?)
8. What is your future plan (if any) on housing?
9. What is your future plan (if any) on housing for your son/daughter?
10. Do you have any problems with your house or land?
11. Do you have any expectation on housing or land policy from the local authority?
12. Do you have any expectation on infrastructure or environment to the local authority? What services they have? What problems with those services?
13. What do you think about the current tax policy on land and housing of the city?
14. What do you think about the current eviction and compensation policies on land and housing of the city?
15. What do you think about the current resettlement policy of the city?
16. Are you concern on the inundation ability of this house? If so, have you had any action to prevent?

Thank you very much for your cooperation!

APPENDIX B

Pictures of houses

Site 1-An Khanh SRA


BÌNH HẰNG










Site 2-An Binh RRLA

Site 2 (continued)
















Site 3-Thoi Nhut RLA

Site 3 (continued)

Site 4-91B NURA

Site 5-Phu An NURA

Site 5 (continued)

APPENDIX C

Interview transcripts with householders and government officials

Table 1: Transcripts of the officials' interviews

Official interviews	Q.1. There has been a lot of new housing development in this city over recent years including pre-build housing by real estate developers and self-build (self-help) housing by house owners. Do you regard this as a good thing or a bad thing, or a mixture of both?	Q.2.What is good about it?	Q.3. What is bad or problematic about it?	Q.4. How do you regard the role of spontaneous housing in Vietnam in solving the housing need for the urban low and middle income group?	Q.5. Being self-help housing, but some new housing has been formally planned and approved (new residential area), whereas other new housing has been built in a more informal, spontaneous fashion (spontaneous residential area). How would you compare the two types of new housing?	Q.6. In your opinion, what are the main reasons of the spontaneous housing development in this city?	Q.7. What are the difficulties in managing the development in spontaneous housing areas?	Q.8. What are the major challenges for providing infrastructure (including road, electricity, water, drainage) to the spontaneous housing areas?	Q.9. What do you think about the roles of the National Housing Development Strategy in solving the housing need for the urban low and middle income group in Vietnam?	Q.10. Is there any current or future housing policy or scheme designed for the urban low and middle income group?	Q.11. What are the major challenges for developing any plan/programme for housing the urban low and middle income group?	Q.12. What is your opinion about the roles of the Urban Upgrading Projects (UUPs) in urban and housing development of Can Tho city?	Q.13. Does the City have any plan or solution on urban and housing development in coping with the climate change (CC) and sea level rise (SLR)?
1	For me there are both the pros and cons in this development	I think the pros mean it prove that the income level of people is better. People are more concerned on housing issue	When people build their houses in spontaneously or under the plan, spontaneous construction would have bad effect on the city's master plan and the general development of the city	When the self-built housing is derived from people's demand and economic conditions. Regarding their choice on the self-construction means the cost problem will get better and consistent with the income level of people	As I see, the construction of urban area planned by the state is better in terms of the infrastructure. And about the spontaneous housing issue, the infrastructure would not have been as good as urban areas issued by the state. Also, the urban areas have more advantages as uniform planning area. But each one it will go with the cost to the people, the people are poor, it will have certain dependent ones	The main reason for the development of spontaneous settlements means that the income of the people is low only. But if the people have money, they will buy in a more complete planning area	I can't answer this question	I can't answer this question	I can't answer this question	As I understand, at the moment, the city has a number of policies related to urban issues for people with low and middle incomes, that is under the social housing projects which are conducted by independent investors	The preparation of the plan depends on the income level of the people. So, if the income level of people not high enough, it is difficult to ensure the conditions provided for people with housing needs	Currently I think the urban upgrading project also brings many benefits to the people concerning issues of infrastructure development. Then where the infrastructure is developed, the living standards of the people will be better and help the city to become better	Currently, the city has the programs and plans for the implementation of the response to climate change. Then those programs are implemented uniformly across the country from the central to local levels, they are now in the process of implementing the project

2	I think that includes both good and bad	Good because people live better in there, more secure, better road conditions, and more convenient	Because being spontaneously built so the infrastructure conditions of self-build areas are not as good as pre-build ones	The role of self-build housing currently is that it will match the income situation of low-income people	As I've just said, both have their good and bad sides	As mentioned above, the spontaneous neighbourhoods will match the income situation of every citizen, people have more money they will build more, and people have less money they will build less, appropriate to each specific household	Difficulties such as infrastructures, so it will be difficult to upgrade these residential areas	Due to the spontaneous residential areas so it's extremely difficult to develop roads, because the roads are winding and without a specific plan	The role of national strategy is important in developing a modern city and avoiding the mayhem of low-income housing development as recent	This issue I will not share	People usually have 'stick plugging'(short term) thinking, so there are some certain difficulties if we want to implement some assistance projects	After upgrading, the urban areas have road conditions improved, conditions in all aspects of people in urban areas is much better improved	In Can Tho City currently, there are several solutions such as: building the tide sluices, trying to plant more trees and creating more green spaces for the city, as well as improving road and house level
3	Generally speaking, now the pre-build or self-build housing projects have both the good side and bad side in parallel. For example, houses within the projects which were built up for sale to people by that you can manage the overall urban appearance and ensure the standards that are oriented and planed for those areas by the government. While the self-build housing of course can serve the demand of people exactly the level that they could afford. But with such kind of self-help housing, the urban appearance will not be ensured within the spontaneous areas and it's difficult to ensure for the long term of governmental administration			The self-help housing for the group of the urban low and middle income people, it means that people can afford to build up to that level so they could self-explore the location and the level of building which suit their abilities. Firstly, it ensures their demand on housing, but as I said above when spontaneously build make the urban outlook management so difficult for the state.		The main reason we can see obviously is the population of the city is increasing so that pull up the demand for housing to be developed along, so as the urban management of the local authority is not tight enough so people have to compulsorily seeking for the locations to develop their own houses, that's the main reason for the boom of the spontaneous housing areas currently.	Firstly, is the issue of the urban appearance, within the spontaneous residential areas, people would build with their own preferences, not follow the building standards so there is not the unitary of the urban outlook. Secondly is the issue on water supply and drainage, road or electricity etc. they would construct to satisfy their demand not with the regulations so in the future in order to connect to the overall public systems of the city there will be some troubles happen.	Some of the difficulties on supplying services to those spontaneous residential areas, firstly now the SRAs are booming in the areas which are called the urban fringe, so those areas the clean water system of the city might not reach or the roads were built by the owner of the SRAs which they self-divide housing plot themselves so the infrastructure is not ensured like the other projects which were done by the state	Currently in our city there are many housing projects which are designed for the low and middle income group of people, however the deployment is not quick enough and not in particular. Moreover, the 30,000 billion VND subsidy package for the low and middle income people in urban area is difficult for the low income people to access. In humanity, this policy is very good and shows the concern of the state on the low income people but the performance is not fit with the target that we set out.	Currently, our city has many projects for the low income people such as in Cai Rang district there is a project which is under construction	It means that the nearest difficulty in our city is the thing which is called 'clean land fund' (CLF) is not sufficient to supply for the low income housing projects. CLF is including the land which is not in trouble with the eviction for the developers to develop the project smoothly	Now, urban upgrading is in order to upgrade the alleys in general in Can Tho city base on the existing road condition. Firstly, it makes the unitary urban appearance for the city, and secondly contributes to push the overall social economic of the city. Generally, it's is very important	As I know, the city already has the plan and solution for this issue. However, in order to apply into practice of the city we must have to seek for the opinions from the upper level leaders, that issue I will not discuss more.

4	Both of them have the good and bad side also. If we talk about the good side of the pre-build housing and housing that was built in the formal residential areas, those houses were planned in detail with the developing direction for each city. The residents are gathered so that the issues on livelihood and society would be more improved. If we talk on the self-build housing, because the problem is people are helping themselves so it is not follow the general plan of the local departments of the city, so it will be difficult for the urban management task and widely it will affect the other social issues and infrastructures could not be met, difficult to manage and difficult to serve well for the development of the city in the future	If we talk about the role of self-help housing, it only has one very simple role that solve the housing issue for people at the contingency status, it means that they are on urgent need for housing so they build themselves so that is the basic pros of self-help housing and no other thing on it.	In my opinion, there are many reasons. For subjective reason, in actual situation that people with the low and middle income who cannot approach the formal housing projects which might be at pretty high price, so they will build with their own preferences and abilities and also with the land asset which they own. For objective reason, it's partly because of the custom and habit of Vietnamese people which they want to build their own house that they design themselves at the location they like. Those are the main reasons for the situation of spontaneous housing areas. Besides that, the intellectual standard of the people in low income group is usually not so high, most of them are blue-collar worker so the level of updating news or press, internet, television is not convenient so it really difficult for the local officials to communicate information to them. So, in order to deliver the social housing packages to the low and middle income people it need more actual action and concern	As I said before, the level of low and middle income people intellectual and information accessibility are not good and not in time. Secondly, if we say spontaneous resident that means people could build houses wherever they have land or land use right, and whenever they have enough ability and condition to build. So, the local officials could not manage all that issue. Consequently, the social issues such as road, electricity, water drainage and many other social-economic issues	As Vietnam is still a developing economy and poor country, and Can Tho city in particular the traffic system is quite good generally but the rural and spontaneous residential areas are not as the local government could not manage to build everything at once so it needs plan for five, ten or fifty years, so the problem is time and huge budget to satisfy the infrastructure demands such as electricity, road, or school, drainage system for the spontaneous residential areas	That strategy has an important role because it can solve almost the housing need for low and middle income people, help them with a place to settle and work better as Vietnamese usually say that 'permanent home makes brighter job'. Secondly, this strategy helps the officials to manage the residents within the cities and the systems that go with housing could be developed better than the spontaneous housing.	Currently in Can Tho city, there are some housing packages and urban areas being built up, including the projects for the low and middle income people with the low price for house or flat and also with the support from the bank for loan with the 30,000 billion VND program and the procedure is quite simple if people are interested in	As I said before, it's because of the custom and habit of Vietnamese for many years ago that they prefer to live in the houses which were built by themselves at the place they wish and they do not want to buy a house that was built by another person. Secondly, because of the low intellectual standard that makes poor communication with the policy information, that's the difficult issue to solve for people to access the program. Thirdly is the administrative procedure which is usually not clear to the low and middle income group, so if the local government could solve the above three main problems I think we can solve the issues that we are talking about	First, it improves the social-economic situation for people, helps people with a better life and job. The city is performing the packages and projects of the UUPs which could have far more effects in the future.	The city has concerned on this issue for several years. And currently, we are building up some projects such as the dyke system for the rivers, upgrading the canals. On climate change mitigation, we are implementing the policy which encourage builder to use non-heat brick and till 2020 to replace all the heated material, and complete the water treatment system and grow more tree, and encourage people to live in formal urban areas to manage and improve the living condition, telling people to protect the city and understand about the global problem of CC and SLR and Vietnam in particular

5	Recently, I see many pre-build housing projects and also the self-build housing and of course it has both the good and not so good things. Everything has both sides characteristic	For me, with the houses that were planned and built up already so the architecture and other factors of planning could develop in the right way of urban planning of our city currently on residential or industrial areas	However, with the spontaneous housing development of course without and dissatisfy any plan so it is spontaneous areas and might be cleared up in the future for urban development but the compensation level is not right	Well, spontaneous housing if considered as a math calculation it could solve the temporary issue. It means that when people have the need so they just build, could do it with their wish and their amount of money, for example with much money they will do it well otherwise they just build enough to live. So, in the general picture, there are some houses are built very well and beside that there are some houses that are not appropriate so the master plan is not ensured	Obviously, the names show the attitude of the housing types. For the spontaneous housing, we could see that people are satisfy with their budget, and some other formal urban housing projects which are not in the reach of people or have to pay interest for the bank loan monthly. However, I still more advocate the formal build with the plan	I think the most basic thing is people are lack of information. It means they do not know about the information on the plan or new housing development or the area that will be developed to something in the future. Secondly, they are lack of knowledge and the most important thing is their custom which means they think 'permanent home makes brighter job'. Or even some households just wish to have a house to live that would be fine at anywhere but some just wish to stay on their own land and do not want to move to the other place. I think that the three main factors	The most difficulty is still the issue of providing knowledge and information on the general development of our city in order to mobilize people go with our general direction, that's the most difficult thing on public relation	I think the most difficulty is because spontaneous development so there is no drawing no architecture style formally with a progress, people want to build whatever they want in their mind so that is the most difficulty	Well, that role is extremely important because it not only adjust for one particular province or city but also for the whole country, it is more on macro-strategy	As I know currently our city has many such as Hoang Quan housing project or Hong Loan residential area or some apartment projects which providing houses for the low and middle income group of people	I think the difficulty is we have to do the survey in order to know exactly the people and their need and wish so that we can make the plan or policy for the next period	If it is fully promoted it could have a very big role. It will solve the social-economic issue, improve people income, people job secure and contribute more to the city development	As I know there are many but the nearest is a project from Australia which help to develop Can Tho city to be the Model City of Asia. That's the information which I read and heard on press and television recently

Table 2: Transcripts of the households' interviews

Householder interviews	Q.1. Could you please explain the origins of this land plot? (Or how did you get it?)	Q.2. How did the legal process happen?	Q.3. How the tax obligations on land and housing were done?	Q.4. What were the difficulties during this process? And how did you solve them?	Q.5. How do you compare your previous house to this one?	Q.6. Do you intend to live here permanently?	Q.7. To what extent do you feel confident that you will be able to live in this house and land? (Or do you worry about the possibility of eviction?)	Q.8. What is your future plan (if any) on housing?	Q.9. What is your future plan (if any) on housing for your son/daughter?	Q.10. Do you have any problems with your house or land?	Q.11. Do you have any expectation on housing or land policy from the local authority?	Q.12. Do you have any expectation on infrastructure or environment to the local authority? What services they have? What problems with those services?	Q.13. What do you think about the current tax policy on land and housing of the city?	Q.14. What do you think about the current eviction and compensation policies on land and housing of the city?	Q.15. What do you think about the current resettlement policy of the city?	Q.16. Are you concern on the inundation ability of this house? If so, have you had any action to prevent?
1.1	I bought this piece of land since 1995. At that time, it was just agricultural land and after that I changed to residential land and then I built up. The first time I built in 2006 with one storey and after that I upgraded into two storey house in 2013	All of the procedure fit with the requirement of the state but by the service provider not directly by myself		No, because I was help by service provider all	It was a little bit better when I first moved here to live in the first built house and is much better now with this house	Yes, I do intend to live here permanently	If the state does the plan they must compensate for me adequately because I have all the legal title and my house is already finished completely with house paper and land paper with building permission	Currently I do not have any plan	I think this land is enough for my kids also	No	I hope that the state try their best to supply more place for people to live as 'permanent home makes brighter job'. And also makes it more convenient for citizen to own their land	First, the roads need to be widened as this area is very crowded with many residents living here but the roads are narrow so there are accidents very often. And about environment, as this area is a new develop area so the environment issue is not good so there must be a particular plan for this issue	Generally, there must be a support from the state as the tax rate is quite high	Tax is high but compensation is not high and not adequate	Those issues need to be improved and modified much more	Currently my house is higher than the road surface nearly fifty centimetres so there is no inundation at all. However, the urbanization issue could cause the inundation in the future so the water drainage and treatment system must be concerned much more to ensure people life

1.3	I bought this house from previous landlord and the house was already built up by him and sold to us. I live in another province but have a job here in Can Tho so I decided to buy this house to live with my wife and my little son as it is affordable to my budget	At first I just had a 'hand paper' with the landlord, then after he finished splitting his land into different plot we did the legal process to change into my name	As it was agriculture land so I have to pay the tax for changing the land use purpose into residential which cost much and I still not finish this duty yet	I think the tax is quite high however the state does let us to owe this money, after we finish they will issue the title for us	It's not better than my hometown, but I have a job in this city so it's fine to live here	Yes, but if I have much money I will move to a better house at another place	I think the state would relocate us if they take back this land and compensate for this land also. But I think this area is stable so I decide to buy in here	Don't know	Not yet	I just have opinion to the local government on the security issue in this area, there are still many thieves and robberies	No	There is no drainage system in this area so when it rains the road is usually inundated and makes many difficulties for people here. So, I wish the state would improve this situation by constructing drainage system for us	I think it's fine but the tax rate is a little bit high	I don't know	I have no opinion	I am concern but I think the only way is level up my ground floor
1.5	This land is from my wife parents who both died few years ago. The total area of the land is around 1000sqm, all agricultural land, which was then divided to the three sons and daughter, so each one over 300sqm. After that we applied to change haft of our land area to residential land and then built up our house. Before that I lived in a small house in a small alley in city centre. We decided to move here after we both retired.	It took some time but not difficult as my wife used to work for the local authority before	Actually, I don't know much as my wife did it	I think not at all	It's much better as the land is much larger so we could plant some trees and flowers in our garden. And this house is much bigger which is 8m wide and 15m length compare to the previous one just 2.5m wide and 12m length	Yes of course. And we have also let out the other house since last year after we moved here	No, I'm not worry at all because our house is out of the planned area of the state, and we had all the title for the house and land	I think it's ok now	We have one daughter who got married and moved to live with her husband, and one son who currently lives with us even when he will get married next year	No	I don't know	I just want the state to upgrade the alley in front of our house and install the drainage system as soon as possible	It's fine, no problem	I don't know	I don't know	Yes, because there is no drainage system so all the rain and waste water go directly to the surrounding canals which sometimes make inundation to our garden
2.1	I bought this land and after that I built up the house	There were many trouble and issues, so I hired other people to do it all for the paper work for the land and house not by myself	I don't know either as it was done by hired people		This place is more comfortable, but the previous rural lifestyle is different from city one	Yes of course. Mainly for my job and a place to sleep after working, and this area is quiet so I like to live here more	I think we can adapt to the situation for example the state take back the land they will allocate us to a similar place or better			Generally fine, as this area has just been planned and developed. For example, in this area the electricity is ok, but the water is a little bit weak	I just wish the state does the land planning more specifically, do the project quickly after the plan and don't waste the land source	As I said before, if we do not build up the grass will grow and there will be mosquito and other environment issues	I don't know much about the tax policy, but I think there is an issue that we have to go forward and back many time for many different types of tax, so I think it's complicated and the state should combine all in one tax so	I heard that the state would compensate land for land, if not they would do by money as regulated or deal. So, I think it's make sense as it is the agreement of both sides	It's good and make people life more stable	Currently I do not concern much as this area is very high and is not inundated when raining. However, when the number people grow it might cause trouble as the drainage is too small

						people can do it very quick		
2.2	Because the state 'planned' my previous place area so I've moved to this current house to live. This area is called 'relocation area'. This land was allocated to me by the state, as I and some other 250 households were evicted our land and houses in a road widening project from Cai Rang to Phong Dien. The state just supported us by relocating here. But if people came here without job, all of those have sold their land. In this area, more than ten households that came here without business or job, they all had to sell their land or houses, dropped all, sold to other richer people from elsewhere such as 'the City' (Ho Chi Minh City) or from Soc Trang, Bac Lieu, Ca Mau came here to buy, they were all strangers. Many original relocated people could not afford to live here, as the state sell the plot for around 100 million (VND) but they did not have enough that amount to pay for the state, and they did not want to owe the state money so they sold it to other people for more than 100 million to make some profit and buy another land plot and build up themselves so they do not owe the state anymore. Now I am still owed the state money which must be paid in ten-year period, so about 10 million a year, it may be due soon I think	It was easy, as land was from the state. We just only had the notificati on paper and when we finish the payment the state will issue the tittle for us, most of the household s here do not have the title yet. With the state support, we came here to live but kind of temporar ily stay until the state invite us to leave then we'll leave. Those poor people they sold their plots, those richer build houses to live with only the notificati on paper	We have not done anything so far, even for the money for the land. And also the other people in this area, even those who bought it from the original owner and some rich people who wish to pay full money in order to get the title could not do that because these land plots belong to the state	If you have permanent job, it's would be good to live in this area as the traffic is low so little noise and dust. But if not, you will be 'dead' and have to sell the land	The street lights have just worked recently, before that there were few houses so they did not turn on the lights until everything complete. After that the state organized a meeting and required each household to contribute at least 0.3 million VND to complete and make the lights on. Actually, because at the beginning everything was done but few people live so the theft cut down some lights, so we had to contribute to help the state to put them back	Living here, well, because we just stay here but do not have a permanent job to do for money. My husband and son used to do the 'tri-cycle' (kind of motorised vehicle for goods) in the past, but it was banned since 2007, so we have to borrow some money from the bank to buy a small truck for doing service in recent years. For me, you know, in the morning, most neighbours close their front doors for office until evening, I mean the strange people from elsewhere not the original one who were relocated here and hardly found an office job, so you could not do the 'trade' (usually with a small family shop) at all in this area	No. There is no inundation so far

3.1	I bought this house from the previous owner one year ago and have lived here since then	It was very quick and smooth, they have just added my name to the back of the title and not yet change the owner's name of the title (*sang tên*- produce the new title with new name)	It was also very quick	There was no difficulty at all	The current house is more spacious, the road is clearer, and there is no problem such as inundation which often happened in my previous place	I intend to live here permanently as it is convenient for me to go to work	If the state wants to take back the land, they must give us another house or land to resettle	I also want to build up one more storey, but I'm not sure that they built this house strong enough for us to add one more storey or not	I want to extend the house in order to have more space for the kids (sound of baby crying)	Currently, the house is narrow but the road's pathway is too narrow which we couldn't park our motorcycle	I think that the state made the street for us to live here but the land plot is too narrow and without any way for emergency exit	I think when the state wants to build a residential area there must be the exit path for people to feel more secure	They have not yet come to collect so I don't have any idea. And the money I paid for the land was not much as it came from the previous owner and they already paid for the infrastructure cost so I don't know much about that	I have no opinion	The resettlement policy is to help people with settled place to live and to go to work. There are also some difficulties for people find a new job, especially the farmers, their land was all evicted and they just been supported a place to live not a job to do	Because this house was built by the previous owner with high ground floor level. However currently the road inundation is almost reach the house level. So, I am also worry about if the tide is getting higher so what will happen, maybe I have to level up the house's base
3.4	Currently I am living in this house which the state provides the resettled land plot for me because my old land was taken back by the state to do a project, they give this plot and I build a house on this piece of land	Because this is a relocation area of the state so the paper work is quite easy. However, during the process there was still much waiting time periods	If I want to do the building completion, in the construction process I must have all the documents to prove for the material cost and other things such as legal land title, after that base on the total value of money for building this house I would be returned the tax by the state and issued the pink title for me	Generally, it is acceptable but with some difficulties during the application process. So, I wish these procedures could be simplified a bit so we do not waste our effort to do it	Basically, I just live here for a while so on the living environment I think this place has good infrastructure such as electricity, road, market, but I am a new resident so I feel a bit strange to other surrounding people which would be improved gradually	Probably live here for long as my old land plot was taken back by the state to do other project and gave me this plot and I spent all my money to build this house so will settle here permanently in this house	Not at all as this is relocation area	I live here build house here and work here permanently until the state has new decision if any	They are young so just live with us and later grow up and get married so we will make decision later if they like to live here they could or if I have condition I will buy for them another land in another place	As this relocation area is quite crowded with many different social backgrounds from many different places and environment gather in here so I am a bit scare on the security issue, so there must be police or local security guard go on patrol more frequent to protect people from theft	I think the procedure on land and housing must be simplified so people can do it easily and quickly	As so many people here so it must be concerned on the solid waste collection, water drainage without inundation when raining, and beside that the fire prevent and fighter must be concerned more frequently, I see there are some equipment but not enough, so it must be improved to secure people life	I think there is still some problem and difficulties. Such as my old land is big but the compensation price does not satisfy me much. My land is large but relocate me with a small land so I could not grow any thing	It must be informed widely to people and let people know in advance and post the amount of compensation and also make it convenient for people in receiving the money and relocated land plot. It must be done publicly and transparently, so anyone knows and supervises	When the state need to take back the land and give us another land in relocation area. I think it is fine, but I hope the process must be quick and easy for people	As there are still little houses in this area so the water drainage is fine but still inundated with some heavy rains, so the state must concentrate on the drainage issue in relocation areas for long term use
4.1	Just three years ago. This house was self-build because the state		This land is totally supported	The process was quick	I think this area is fine and better	Settle of course, don't move	No, because this area is	I'm living with my	No	No. I think it's all good	I don't know	I don't know	Actually, because my family never	As we use to live in a poor condition	So, it's fine to live here thank to the	Yes, there are some inundations so

	gave us the land. Before that, we lived in An Nghiep ward		by the state. Then we built this house and they issued the red title after we paid few millions VND for the land around 8 million VND	and easy. It was mostly done by the state. Generally, as we are in difficult situation and have poor literacy so the state helped us all	than the previous place. It just has some problem on street corner like this which is dangerous for my little kids so we scare more than in the small alley before. However, the security issue is fine	anywhere (laughing)	sure and the red title is confirmed with my name	mom. When my kids grown up, I will move to my husband place. Because I am the only daughter so I live here to take care of my parents				ever do the land and housing tax before so we do not know how much it is (laughing)	house which just made of some plastic panels in a small alley and then the local government considered as 'poor household' and my mother has a 'policy status' which is minority ethnic so they give us this new land plot to live	state and we are happy and comfortable now, leaving the poor condition such as mosquito and smell behind	far but not so worse around my house than the other surrounding areas. So, we do not worry much about that but our neighbours are still suffered from the inundation. The flood just reached my front yard a bit and then went down without coming into my ground floor and it quite rare when there were severe rains
4.2	My house is 5m wide and 8m length total area is 40 square meter, build with grade 4th in all the area of the land. Because of the UUP so they relocated us here in order to build the new road	That is quite quick. After they recorded all the information then the DoNRE issued the decision to give us the land on which road, which number and how many square meter of the land	I don't know and no one tell me about that before. I just build the grade 4th house so I do not have to apply for paper which cost much time and money unless I want to build multi storey house	Not at all, they just allow us to build house freely. Even you go there to apply for permission paper, they do not care much and just say that I could build it up as I want as my house is just non-permanent at the 4th grade	Sincerely, if you live in a place for many year and then move to another place, it would be less secure than the old one even the new place is bigger. Just some people who do not have land or place to live such as people live on boat so they would be happy and the state did very well with this	Yes. For me I will stay here until I die. But if you have much money you could buy a better house of course	You could not do anything with the 'command' of the state	Not at all	I don't know. I'm nearly 80, too old and just let my son and daughter decide themselves	No	Although you want to oppose the policy of the state, you can't do anything				Rain, the water goes up for a haft to two hours and then goes down

5.2	I've lived here for ten years. We had land in this area before and then were relocated in this house. They took our land back and then they gave us this house for resettlement. The house was already built for relocation. My old land was just right there near that field	At first, we just moved in to live, and then gave us the paper just around two years ago. They already issued the paper and we just come to the company to collect. Just signed and took without paying any money	The period that we did not have title, the company hold our paper so they paid tax. And then they gave us the title so we pay the tax afterward	No, because the company did it already so we just come to sign and collect it	This house is better than my previous one in the paddy field. I feel more comfortable after working and come back here	Yes, as I have kids so it's more convenient for them to go to school	No, because we already have the legal title so we do not worry anymore. Before, the old land was named by father so he got all the compensation and divided for each of us one house to live separately	For long term living we just intent to refurbish it after long term use	Not yet	It is enough for us to live, not too small nor too big	No	There is no inundation here, and it's also quiet as people goes to bed around 9 or 10pm	I think it's ok, here we just pay around 84.000 VND per year, so it's not high	It's fine	This is settle forever, not 're' anymore (laughing)	This block is higher than the other blocks which were sometime inundated, but we were not
5.3	I just live here one year ago. I bought this house and just do some refurbishment as the house was already built before	After negotiation, we went to the notarize office to sign paper and then went to the land and house department of the district to apply for the new paper	It's just take time and nothing else	I like to live in such quiet area like this not in the crowded and noisy areas in the city centre. This area is quiet with wide and clean road	Yes of course because I chose it very carefully	No	As we could not do anything for this area as it would affect the overall architecture	I have only one kid, so he will continue to live here after me	Generally fine with no specific difficulty	I think the most complicated thing is paper procedure. It's prolix and take much time	No	I don't know much about it as I just bought this house for a while, I don't know the previous owner paid it or not but I see now it's quite high for me and out of my budget. I bought this house for around eight hundred million VND but I have to pay nearly twenty million VND for the tax as the buyer usually in charge for the tax	I don't know as I have never been in such situation	I think such relocation areas like this one are good for living as quiet and good security environment	This area is not inundated before so I am quite pleased with this issue because I hate the inundated areas as we would be mad if live there in the long term. So, I carefully checked and asked other people before buying this house

APPENDIX D

Housing development projects

and housing for sale details in Can Tho city

Table 1: Housing development projects in Can Tho city

No.	Name of project	Developer	Area (Ha)	Started	Progress (in 2009)	% done	House number (in 2009)	District
1	New residential area Lot No. 1A	Long Thang Trading and Investment Co. Ltd.	40.4	2005	6.1	15.1	48	Cai Rang
2	Hung Phu 1 residential area Lot No. 3A	Can Tho Housing Development and Trading Jsc.	60.2	2005	35	58.1	243	Cai Rang
3	Hung Phu resettlement area Lot No. 3B	Can Tho Housing Development and Trading Jsc.	29.9	2003	4.2	14.0	52	Cai Rang
4	New residential area Lot No. 7A	No. 8 Construction Investment Jsc.	46.1	2003	32.5	70.5	390	Cai Rang
5	Nam Long residential area Lot No. 8B	Nam Long Investment Jsc.	20.8	2004	10.3	49.5	86	Cai Rang
6	New residential area Lot No. 8C	Nam Long-Hong Phat Investment Jsc.	12.2	2003	7.4	60.7	33	Cai Rang
7	New residential area Lot No. 11A	Van Phong Company Ltd.	8.7	2003	7.3	83.9	55	Cai Rang
8	Dieu Hien residential area Lot No. 11B	Dieu Hien Construction Company Ltd.	16.8	2003	13.3	79.2	74	Cai Rang
9	New residential area Lot No. 11C	Agrimex Jsc. - Can Tho Branch	13.1	2003	11.6	88.5	80	Cai Rang
10	New residential area Lot No. 11D	Long Thinh Company Ltd.	14.4	2003	9.6	66.7	112	Cai Rang
11	Phu An new residential area Lot No. 21	586 Construction Jsc.-Cienco 5	128.2	2003	65.2	50.9	1588	Cai Rang
12	New residential area Lot No. 13A	Thien Loc Company Ltd.	32.1	2004	8.5	26.5	139	Cai Rang
13	Tan Phu resettlement area Lot No. 15A	Can Tho Housing Development and Trading Jsc.	36.2	2002	9.5	26.2	11	Cai Rang
15	Ngan Thuan residential area	Ngan Thuan Company Ltd.	140	2004	135	96.4	50	Binh Thuy
17	Linh Thanh residential area	Linh Thanh Company Ltd.	11.9	2003	11.9	100.0	11	Ninh Kieu
18	Van Phat residential area	Van Phat Company Ltd.	18	2005	7.6	42.2	38	Ninh Kieu
19	BMT residential area	BMT Jsc.	13	2005	13	100.0	7	Ninh Kieu
20	No. 7 residential area	Cataco Ltd.	1.3	2003	1.3	100.0	95	Ninh Kieu
21	No. 9 residential area	Cataco Ltd.	1.5	2003	1.5	100.0	102	Ninh Kieu
22	No. 243 residential area	Cataco Ltd.	1.8	2003	1.8	100.0	114	Ninh Kieu
23	No. 91-23 residential area	Cataco Ltd.	4.5	2003	4.5	100.0	744	Ninh Kieu
24	No. 91B residential area	Can Tho Housing Development and Trading Jsc.	62.8	2003	48.7	77.5	986	Ninh Kieu
25	Hong Phat residential area	Hong Phat Construction Investment Jsc.	53.2	2004	51.2	96.2	178	Ninh Kieu
26	Cataco-Metro residential area	Cataco Ltd.	6.8	2003	6.8	100.0	98	Ninh Kieu
27	Thoi Nhut resettlement area	Ninh Kieu District Authority	12	2004	12	100.0	352	Ninh Kieu
28	Resettlement World Bank Project	Urban upgrading PMU-World Bank	18	2005	18	100.0	283	Ninh Kieu
	Total		**803.9**				**5969**	

Table 2: Housing for sale details in Can Tho city

Id	Address	Latitude	Longitude	Price ratio (=asking price/land area)	Price	Land area	Residential land	Agriculture land	House area	Storeys	Type	Car access	Road width	Electricity	Water	Public facilities	Title	Nra
1	174/25, đường trần quang diệu	10.057915	105.764069	7.894736842	750	95	95	-	Land only	-	-	1	10	1	1	1	1	0
2	Hẻm 93- đường cmt8	10.064243	105.756993	5.5	550	100	100	-	LO	-	-	1	10	1	1	1	1	0
3	Ngã 3 từ quốc lộ 91 rẽ vào viện lúa đồng bằng sông cửu long	10.128374	105.596999	0.126603646	1500	11848	200	11648	LO	-	-	1	4	0	0	1	1	0
4	Đường cách mạng tháng 8, từ cần thơ ra chua qua ngã 3- đèn xanh đèn đỏ đường cmt8 và đường tran quang dieu	10.058261	105.767398	25	4000	160	160	-	283	4	1	1	37	1	1	1	1	0
5	Hẻm 1,mậu thân, phường xuân khánh	10.027692	105.776087	11.45833333	550	48	48	-	58	2	2	0	2	1	1	1	1	0
6	Mặt tiền đường quang trung ngay khi qua cầu cái cui-chợ cái cui	9.972998	105.829865	3.625	290	80	80	-	LO	-	-	1	80	1	1	1	1	0
7	Hẻm nối ra ubnd phường an bình phía sau là rạch bà bộ cách ubnd phường an bình khoảng 500 m	10.013861	105.750686	3.6	270	75	75	-	LO	-	-	1	4	1	1	1	1	0
8	Hẻm 70,đường trần hưng đạo	10.038178	105.777173	16.07843137	820	51	51	-	100	2	1	1	5	1	1	1	1	0
9	Dự án khu 586	10.004553	105.80507	6.25	750	120	120	-	270	3	1	1	12	1	1	1	1	1
10	Khu đô thị mới hưng phú cic8	10.012644	105.793198	5.9375	570	96	96	-	LO	-	-	1	12	1	1	1	1	1
11	304/18p tầm vu, p.hưng lợi	10.009175	105.763702	11.25	450	40	40	-	84	2	2	0	2	1	1	1	1	0
12	Lộ ngân hàng,gần đại học y dược, nguyễn văn cừ (từ hẻm chạy vào khoảng hơn 250 mét)	10.034095	105.759652	9.821428571	550	56	56	-	90	2	1	1	4	1	1	1	1	0
13	Kdc vạn phát, cồn khương, p. Cái khế	10.058784	105.778863	5.9375	380	64	64	-	LO	-	-	1	12	1	1	1	1	1
14	Bán nền kdc metro	10.021854	105.760395	9.480519481	730	77	77	-	LO	-	-	1	12	1	1	1	1	1
15	Hẻm 90 hùng vương, quận ninh kiều cách mt 200m	10.043946	105.776947	22.5	900	40	40	-	100	2	1	0	3	1	1	1	1	0
16	Nền kdc cty số 8	10.014294	105.792395	4.891304348	450	92	92	-	LO	-	-	1	14	1	1	1	1	0
17	Đường trần quang khải, p. Cái khế đối diện sân vận động cần thơ	10.047953	105.786729	25.80645161	4000	155	155	-	LO	-	-	1	18	1	1	1	1	0
18	Bán đất: khu biệt thự , tại cồn khương	10.058847	105.773572	4.8	7200	1500	300	1200	LO	-	-	1	18	1	1	1	1	1
19	Dự án hưng phú (xây dựng 8)	10.01258	105.789175	5.25	1050	200	200	-	LO	-	-	1	16	1	1	1	1	1
20	Tỉnh lộ 920 cách nhà máy xi măng tây đô 100m	10.11545	105.6825	2.5	1000	400	83	317	LO	1	2	1	20	1	1	0	1	0

21	Nha gan truong dh tay do	9.999391	105.759208	1.904761905	120	63	0	63	63	1	3	0	2	0	0	0	0	0
22	Hẻm 67 đường hùng vương, p.thới bình	10.042324	105.779046	9.298245614	530	57	57	-	70	2	3	1	2	1	1	1	1	0
23	Hẻm160 tầm du gần đường trần hoàng na,chợ tầm du	10.013409	105.76912	2.692307692	210	78	38	40	LO	-	-	-	2	1	1	1	1	0
24	Nhà mặt tiền nguyễn thần hiến ninh kiều cần thơ	10.036102	105.778773	32.72727273	3600	110	110	-	330	3	1	1	10	1	1	1	1	0
25	Nền hẻm lò mổ ninh kiều sổ đỏ đất vườn không qhchuyển thổ cư bt	10.040266	105.765576	2.584269663	230	89	0	89	LO	-	-	0	2	0	0	0	1	0
26	Nền thổ cư, khu dc ngang cây xăng phát lộclộ 91b, qua cầu rạch súc khoảng 500 m, từ mặt đường ql 91b đi vào chỉ khoảng 50 m	10.042889	105.733302	3.473684211	330	95	95	-	LO	-	-	1	4	1	1	0	1	0
27	Nền ở hẻm 12, đường 3/2, phường hưng lợibằng khoán đỏ đất vườn, không bị qui hoạch chuyển thổ cư cách mặt tiền đường 3/2 khoảng 100m	10.015303	105.754633	1.968503937	500	254	0	254	LO	-	-	0	2	0	0	0	1	0
28	Nền cuối khu a2 khu dân cư 91b	10.02031	105.752777	3	300	100	0	100	LO	-	-	0	2	0	0	0	1	0
29	Hẻm 93 (hẻm cặp bình thủy quán - sân bóng quân khu 9) đường cách mạng tháng 8	10.063082	105.759757	5.113636364	450	88	88	0	LO	-	-	1	9	1	1	1	1	0
30	Mặt tiền đường hoàng quốc việt (đường cái sơn- hàng bàng cũ) phường an bình cách cầu bà bộ 200m. Qui hoạch khu dân cư tự cải tạo	10.033849	105.745877	3.48977136	2900	831	290	541	LO	-	-	1	30	1	1	0	1	0
31	Hẻm 18a, đường lê hồng phong, quận bình thủy	10.085333	105.730938	8.641975309	700	81	81	0	81	1	2	1	8	1	1	1	1	0
32	238 - khu vực phú thuận, p. Tân phú. Q. Cái răng	10.00517	105.765669	0.7	2100	3000	300	2700	200	1	2	0	3	1	1	0	1	0
33	Hẻm 137 hoàng văn thụ phường an cư	10.039308	105.779343	16.2	810	50	50	0	50	1	3	0	2	1	1	1	1	0
34	Hẻm liên tổ 2-3 nguyễn văn cừ	10.034615	105.758762	14.81481481	1600	108	0	108	LO	-	-	0	2	1	1	0	1	0
35	Nhà hẻm 107 hoàng văn thụ phường an cư	10.03873	105.781386	14.45783133	1200	83	83	0	166	2	2	0	2	1	1	1	1	0
36	Nhà hẻm 233 nguyễn văn cừ, gồm 10 phòng trọ	10.043642	105.767755	10.18518519	2200	216	216	0	216	1	3	0	2	1	1	0	1	0
37	Nhà 67a, đường 3.2	10.028809	105.771555	44.60966543	12000	269	269	0	269	1	2	1	40	1	1	1	1	0
38	140 nguyễn an ninh, tân an	10.031473	105.784319	89.04109589	13000	146	146	0	118	1	2	1	40	1	1	1	1	0
39	Nhà đường đinh công tráng	10.035974	105.771367	20.83333333	2500	120	120	0	460	4	1	1	18	1	1	1	1	0
40	Địa chỉ thới nhựt 2	10.042417	105.756257	6.7	670	100	100	0	LO	-	-	1	12	1	1	1	1	1
41	Nhà số 3 võ văn tần, tân an, ninh kiều	10.032503	105.784139	121.4285714	8500	70	70	0	70	1	3	1	40	1	1	1	1	0
42	Cặp kdc hồng phátngay nhà trọ trần đức 4 đi vô	10.023218	105.745821	9.135802469	740	81	81	0	162	2	2	1	8	1	1	0	1	0
43	Hẻm 104 nguyễn văn cừ	10.04721	105.770234	15.75342466	1150	73	73	0	110	2	2	0	2	1	1	1	1	0
44	Nền thổ cư tại đ.sân bóng an bình, (đối diện ubnd p.an bình đi vô), ngay góc 02 mặt tiền lộ 1bên 3m một bên 4m	10.013767	105.750898	4.545454545	250	55	55	0	LO	-	-	0	3	1	1	0	1	0
45	Nền thổ cư tại đường nguyễn văn linh, vừa qua cầu	10.04387	105.733348	3.387096774	420	124	124	0	LO	-	-	1	7	1	1	0	1	0

	rạch súc, quẹo trái 50m																		
46	Mặt tiền đ.3/2,p.hưng lợi	10.020076	105.763388	20.77562327	7500	361	361	0	150	2	2	1	40	1	1	1	1	0
47	Nhà 2 mặt tiền: 01 mặt tiền nguyễn văn trỗi (lộ giới 10m) dài theo mặt tiền 19m. 01 mặt tiền hẻm (4m)cách đường mậu thân khoảng 30m	10.036872	105.771319	23.68421053	3600	152	152	0	200	2	3	1	10	1	1	1	1	0
48	Nhà đường số 7 kdc hồng phát	10.022592	105.744704	25.92592593	2800	108	108	0	324	3	1	1	14	1	1	1	1	1
49	Đường số 9, khu dân cư thới nhựt 2, p.ankhánh, q.ninh kiều (khu tái định cư nâng cấp đô thị	10.039926	105.754367	10.58823529	720	68	68	0	90	2	2	1	13	1	1	1	1	1
50	Nhà mặt tiền đường trần vĩnh kiết	10.012331	105.751651	18.18181818	1400	77	77	0	154	2	1	1	6	1	1	1	1	0
51	Hẻm 147- hẻm rộng 3m, cmt8, hoặc có thể đi ra đường nguyễn văn cừ (30m), và đường trần việt châu (100m), thuộc phường an	10.049341	105.77293	12.10526316	460	38	38	0	76	2	2	0	3	1	1	1	1	0
52	Trong khu dân cư quân báo giá rẻ, gần cầu bà bộđối diện chợ bà bộ, gần quán nhậu miền tây	10.036916	105.745972	5.6	560	100	100	0	LO	-	-	1	12	1	1	0	1	0
53	Địa chỉ: kdc 91b, 42a3	10.022947	105.755229	27.16049383	2200	81	81	0	243	3	1	1	14	1	1	1	1	1
54	Địa chỉ: kdc 91b, 31a3	10.02237	105.756104	30.86419753	2500	81	81	0	324	4	1	1	14	1	1	1	1	1
55	Nhà mặt tiền đường xô viết nghệ tĩnh, phường an hội	10.038543	105.783872	33.33333333	4000	120	120	0	122	2	3	1	20	1	1	1	1	0
56	Nền thổ cư mặt tiền đ.võ văn kiệt	10.046037	105.761742	24.61538462	1600	65	65	0	LO	-	-	1	40	1	1	0	1	0
57	Nền liền kề đất thổ cư. Cách chợ cái răng 400m, lộ 4m gần trường tiểu học lê bình, cách trường đại học tây đô 700m	10.002298	105.751552	2.666666667	280	105	105	0	LO	-	-	1	4	1	1	0	1	0
58	Nền tđc thới nhựt 2, p.an khánh	10.041295	105.757411	6.25	400	64	64	0	LO	-	-	1	12	1	1	1	1	1
59	Nền thổ cư 02 mặt tiền đ. Hoàng quốc việt lộ giới 30m và mặt tiền hẻm lộ giới 7m	10.010561	105.746737	11.80555556	1700	144	144	0	LO	-	-	1	7	1	1	1	1	0
60	Nhà hẻm 91 a-b đường vành đai - phường an hòa	10.047859	105.763582	10.61538462	690	65	65	0	80	2	3	1	4	1	1	1	1	0
61	Nền u5 kdc miền nam gần trường ngôi sao	10.017177	105.787121	6.25	400	64	64	0	LO	-	-	1	13	1	1	1	0	1
62	Nền nhà b11 kdc hưng phú gần chợ	10.015733	105.786119	5.555555556	450	81	81	0	LO	-	-	1	12	1	1	1	0	1
63	Trục chính đường số 4 kdc thới nhựt 2	10.040775	105.756021	6.666666667	600	90	90	0	180	2	2	1	12	1	1	1	0	1
64	Nền c7 lô 15 đại học y dược	10.032915	105.746479	4.21875	270	64	64	0	LO	-	-	1	12	1	1	1	0	1
65	Nhà hẻm liên tổ 1-2 đường nguyễn văn cừ nối dài, p.an khánh	10.038267	105.763532	7.792207792	600	77	77	0	77	1	2	0	2	1	1	1	1	0
66	Phía trước: mặt tiền đường nguyễn viết xuânphía sau vành đai sân bay cần thơ	10.090277	105.727157	5.25	630	120	120	0	LO	-	-	1	15	1	1	1	1	0
67	Mặt tiền hẻm 5m - hẻm 6, đường nguyễn truyền thanh, quận bình thủy	10.073527	105.747959	3.289473684	250	76	76	0	LO	-	-	1	6	1	1	1	1	0

APPENDIX E

Statistical results

Table 1: Housing comparisons

Variable	Site 1	Site 2	Site 3	Site 4	Site 5	Vietnam	Can Tho
HHs generation	1.55	2.10	2.23	**2.33**	2.02	-	-
HHs member	4.08	4.36	4.58	**4.59**	4.48	4.58	4.82
Household working age member	3.05	2.68	**3.13**	3.07	2.77	-	-
Household income	2.08	2.00	2.14	**3.18**	2.22	-	-
Value of house and land	1.73	2.41	3.15	**3.52**	2.02	-	-
Land area	86.30	85.70	56.64	**95.34**	78.25	-	-
Width of land plot	5.08	4.54	4.51	**5.37**	4.05	-	-
Length of land plot	16.90	18.03	12.49	17.80	**19.34**	-	-
Total use area of house	96.55	104.22	97.6	**205.26**	157.02	94.58	93.16
Total room in the house	2.95	3.80	3.08	**5.38**	3.73	3.17	3.08
Total toilet	1.44	1.53	1.77	**3.25**	1.67	-	-
Design satisfaction	**2.31**	2.01	2.09	1.90	-	-	-
Building satisfaction	**2.25**	2.04	2.04	2.06	-	-	-
Overall satisfaction	**2.33**	2.00	2.08	2.09	-	-	-
Depth of house inundation	0.27	-	**0.35**	-	0.10	-	-
Depth of road inundation	**0.33**	-	0.28	-	0.23	-	-
House storey	1.37	1.32	1.85	**2.32**	2.00	-	-
Overall quality of house	1.65	1.67	1.26	1.12	**1.00**	-	-

Source: Author survey, 2014

Table 2: Housing type and size in Vietnam, Can Tho and five research sites

	Vietnam	**Can Tho**	**Site 1**	**Site 2**	**Site 3**	**Site 4**	**Site 5**	**All sites**
Number of dwelling rooms								
1	11.6	7.2	2.0	0.0	8.0	6.0	0.0	2.0
2	28.7	34.7	37.6	9.4	31.0	26.0	16.0	18.7
3	29.9	30.1	33.7	20.8	28.0	27.0	40.0	25.6
4	16.8	16.9	17.8	58.5	20.0	23.0	13.0	27.4
≥5	13.0	11.1	8.9	11.3	13.0	18.0	31.0	26.2
Number of bedrooms								
1	42.8	53.6	25.0	14.2	14.3	1.1	26.3	12.6
2	38.8	31.9	37.5	68.9	49.0	29.7	32.3	37.9
3	13.2	10.3	25.0	16.0	27.6	37.4	36.4	24.1
4	3.5	3.2	9.4	0.0	8.2	17.6	4.0	6.1
≥5	1.7	0.9	3.1	0.9	1.0	14.3	1.0	19.3
Dwelling type								
+Separate house	99.0	99.7	100	100	100	100	100	100
+Flat	0.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0
+Others	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Ownership of dwelling								
+Household owned	95.5	94.7	88.8	93.4	99.0	95.0	89.5	93.2
+Rented/borrowed from the private sector	2.9	4.0	8.2	6.6	1.0	5.0	10.5	6.2
+Rented/borrowed from the state	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0
+Others	1.0	0.7	3.1	0.0	0.0	0.0	0.0	0.6

Source: Housing Census 2009 and Author survey 2014; *Unit*: percent